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ABSTRACT

This volume contains 21 articles on aspects held to be important for delivering comprehensive health care to young adults who are at higher than average risk levels for a number of health and health-related problems; choice of topics for the articles is based on experience gained in directing the health program for the Job Corps. Most of the articles are reworked presentations from two colloquia held in February 1972. A few of the articles describe new approaches used by Job Corps to address the health-related problems that can prevent disadvantaged young adults from achieving their self-defined goals. Others deal with common medical problems such as hepatitis, skin diseases, nutritional deficiencies, obesity, and sickle cell disease and traits. Yet others focus on sexuality, venereal disease, and family planning. The last group of articles covers mental health and drugs--dealing with mental health emergencies, aggressive behavior, tobacco, drug addiction, and helping the drug-abusing enrollee in Job Corps. A list of materials produced by Job Corps health staff, including films, brochures, reports, and major publications available for distribution, concludes the monograph. (RJ)

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Problems in

Comprehensive Ambulatory Health Care for High-Risk Adolescents

Articles Based on Presentations from Two Colloquia for Job Corps Health Care Providers February 2-4 and 15-17, 1972

Edited by Jon E. Fielding, M.D., M.P.H.
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PREFACE

This volume was originally conceived as a helpful health program reference for providers of health care to Job Corps enrollees. However, on the basis of considerable outside interest in various aspects of the Job Corps health program, it was decided to make these articles available to a wider readership. This document is issued jointly by the Job Corps and the Bureau of Community Health Services because of the close working relationship between these two agencies. The articles represent the views of the authors and do not necessarily reflect the positions or policies of any agency with which they are affiliated. To enhance readability, masculine pronouns such as "he" and "him" are used in statements that apply to members of both sexes.

A number of Job Corps professionals participated with the editor in planning for the colloquia from which many of the articles in this volume are drawn. These include Dr. Paul Batalden, formerly Principal Medical Officer; Mr. Virgil Ferlo, Chief of the Health Staff; Dr. Scott Nelson, formerly Principal Mental Health Officer; Dr. James Moore, Dental Director; and Mr. Hal Timmons, M.S.W., Principal Social Worker. Drs. Moore and Nelson also assisted in the editing of several articles. Dr. Joseph Hirsh provided considerable assistance to the editor in suggesting changes required to transform oral presentations into readable articles. Ms. Lisa Hirsh assisted the editor in the early stages of this document's preparation. Ms. Jane Lewis was extremely helpful in providing editorial support and overall coordination in readying this monograph for publication.

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October 1973

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INTRODUCTION

This volume contains 21 articles on important aspects of delivering comprehensive health care to young adults who are at higher than average risk for a number of health and health-related problems. The choice of topics for the articles is based on experience gained in directing the health program for the Job Corps.

Job Corps is a residential manpower training program of the Manpower Administration, Department of Labor. The Job Corps provides vocational training, basic education, and supportive services to economically disadvantaged young adults, ages 16-21, at 65 residential centers nationwide.

Coordinated health care services are delivered to all of the approximately 50,000 enrollees who annually enroll in the Job Corps program. The health care goals of Job Corps are to enhance employability by bringing enrollees to a health maintenance level and to provide the knowledge and skills to maintain good health and reduce avoidable illness. These services include (1) a complete entry physical examination with selected laboratory procedures for every enrollee, (2) care of acute and episodic illness, (3) specialty referral and hospitalization, (4) dental care (including preventive dental services), (5) mental health evaluation, and (6) an ongoing mental health consultation program. A culturally relevant health education program covers such topics as human sexuality (including reproduction, contraception, and venereal disease), nutrition, preventive dentistry, drug misuse (including tobacco and alcohol), first aid, the concept of high health risk, consumer health education, and emotional first aid.

Most of the articles in this volume are reworked presentations from two colloquia held in February 1972. These colloquia, part of a continuing health education program, were attended by physicians, dentists, mental health professionals, medical assistants, nurses, and health care administrators who

provide health services to Job Corps enrollees. The principle objectives of these colloquia were to enable participants to:

1. Update their knowledge of health problems in high-risk older adolescents and enhance their ability to manage these problems in the Job Corps setting.

2. Learn about special Job Corps health projects designed to assess the effectiveness of new programmatic approaches to major health problems among enrollees.

Most of the articles were reworked by the individuals who made the original presentations, but in some cases the speakers collaborated with colleagues in preparing the final versions for publication. A few articles provide information on important topics not covered during the colloquia and these articles were solicited subsequently.

The contributions to this volume are not intended as review articles, nor are they, with a few exceptions, descriptions of original research. They do attempt to provide a summary of current basic information on areas of special concern in delivering health services to economically disadvantaged young adults and to suggest workable approaches to helping youths with problems in these health areas. Medical terminology has been kept to a minimum to make the volume suitable for the widest possible readership. Although some authors refer specifically to the Job Corps setting, their discussions of problems and approaches are applicable to many other health care settings delivering services to youths, including other manpower training programs, hospital clinics, secondary schools, colleges and universities, correctional institutions, neighborhood health and mental health centers, and free clinics.

The term "high-risk," which appears in the title, is frequently used in the context of health but less frequently defined. The use of the term in the title of this monograph is meant to signify: (1) that adolescents, by virtue of their age and the accompanying social and maturational forces and behaviors,

are, as a group, at higher risk for some health problems than other age groups, and (2) that within the entire adolescent group there are those individuals who, by virtue of economic, social, behavioral, or ethnic background or current circumstances, have a greater likelihood of sustaining one or more health problems than do their "average" age-peers across the nation. The articles in this volume address themselves to health problems for which adolescents are at high risk from each of these perspectives. However, in the selection of topics particular attention has been paid to ensure inclusion of those topics and approaches which are especially important with respect to economically disadvantaged and minority adolescents.

A few of the articles describe new approaches used by Job Corps to address the health-related problems that can prevent economically disadvantaged young adults from achieving their self-defined goals. For example, the article by Dr. Lieberman outlines the clear need for and development of a culturally targeted health education program to help poor, primarily minority youths get essential health information in a meaningful way. This program, in addition to covering those health areas of primary importance to young adults, includes material that will help them understand the concept of high health risk and learn beneficial individual health care practices including where and when to seek professional help. This information is essential to aid youths in making responsible individual health-related decisions that can reduce their high risk for a number of health conditions.

The article on the Pregnancy Research Project chronicles how Job Corps became convinced that it should retain enrollees who became pregnant while engaged in its vocational and basic educational training program. This paper provides a clear example of how a carefully conceived demonstration project can be used to effect institutional policy change in a sensitive area.

The Job Corps "Solo Parent" program is described by the person responsible for its inception. The article presents strong evidence that making

child development services available for the children of "solo" mothers in a vocational training program can significantly improve a mother's ability to benefit from this training and enhance her chances of achieving economic self-sufficiency. The need for parent skill training programs for parents and prospective parents is also highlighted.

Dr. Nelson's article "Drugs and the Job Corps," outlines the development of a comprehensive, individualized, and sensitive approach to economically disadvantaged young adults who use and misuse drugs. He points out the misinformation that often exists among youths, their teachers, and their counselors, and he shows how carefully designed educational approaches for Job Corps center staff and enrollees concerning drugs, coupled with a firm but functionally oriented approach to drug use, can be the foundations of an effective drug abuse control and prevention program.

The development of an approach to another sensitive health area, hemoglobinopathies, is described as requiring a coordinated program of education, voluntary testing, and counseling. The need for sensitive personalized counseling by individuals with special training in explaining the implications of having a genetic condition is stressed. This article strongly suggests that special projects focused on one health problem should be integrated into the broader context of health care services.

The results of a survey of dental status among Job Corps enrollees, described by Drs. Moore and Shapiro, clearly demonstrate that dental pathology is the most common health problem among poor youth. These results underscore the need for the availability of quality dental services for poor children and youths and reinforce the need for programs of preventive dental education.

A list of materials produced by the Job Corps Health Staff concludes this monograph. The list includes films, brochures, reports, and major publications available for distribution through the Health Staff. The materials listed will provide useful information for those interested in learning more

about the special programs of the Job Corps Health Staff and its experiences in providing health care and health-related services to high-risk adolescents.

It is hoped that these articles will be useful to all those who have an interest in the increasingly important area of ambulatory health care for poor youths.

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October 1973

THE DEVELOPMENT OF A NEW HEALTH EDUCATION PROGRAM FOR JOB CORPS

By

Harry M. Lieberman, M.D., M.P.H.*

In this paper I will describe the planning of a new health education program for Job Corps, including what we hope will be accomplished and how we think the new health education program will affect those who provide health care to corpsmembers.

The first principle we considered was expressed beautifully to me by a very wise American Indian gentleman, Jose Toledo, who has been a health educator among his people for 15 years. He said, "Before a seed can be planted, the ground has to be cleared and plowed." Translating this maxim into our context meant that before new ideas could be communicated to Job Corpsmembers, rapport had to be established; the land had to be prepared to receive the seed or the seed would not germinate.

Our second assumption was that every culture has strengths as well as weaknesses, and that strong cultural backgrounds have helped many corpsmembers survive difficult situations many of us could not have endured. Our job was to discover and build on these cultural strengths. By respecting other cultures we are less likely to try to impose our solutions on them, and more likely to help them find their own answers.

We realized that corpsmembers would be "turned off" if we said that everything they had learned from their parents did not make sense. Instead we reexamined folk wisdom and discovered that much of it was based upon repeated observations that certain things make sick people feel better. With this knowledge, we pointed to the usefulness of home remedies, but at the same time cautioned corpsmembers to remember the limitations of these cures.

Our third premise was that health decisions are ultimately made by each individual. We realized that it is futile to try to decide health matters for others for two reasons: (1) they will not allow it, and (2) we will not

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necessarily make the best decisions for them. As health professionals we know a great deal about technical medical matters, but we can never understand the intricacies of a person's life as fully as he can.

Finally, we recognized the importance of consumer participation both in health planning and in health care delivery. Health care providers may continue to heal people who have become ill, but behavior that will prevent illness and thus have a major impact on the health of the people in this country first requires consumer involvement. To involve a person fully in his own health care, the physician must speak the same language as the layman. I have practiced pediatrics for 10 years in many different settings and observed repeatedly that if the healer is willing to share his knowledge with the patient, together they can plan treatment that not only meets the patient's needs, but also takes into consideration the patient's income, his family, and many other important factors. The patient knows what will suit his lifestyle and he is not confined by the rigid paradigms we have learned. Although consumer involvement in the health field may frighten some health professionals, there is no doubt that it will become increasingly significant and may well improve the quality of the care rendered.

Special Characteristics of Job Corps Enrollees

Corpsmembers are high-risk adolescents. They come from socioeconomic and cultural groups whose members have higher than average chances of dying prematurely, suffering from certain diseases, or being disabled. It is our contention that these odds can be changed if corpsmembers learn more about health alternatives so that they can make decisions which will improve their health and lengthen their lifespans.

Those enrolled in Job Corps represent a selected group who have greater potential than members of their age group who are still "on the street." By deciding to learn new skills they have taken a very definitive step toward improving themselves. This was evident as we studied the centers and worked on a daily basis with a group of ex-Job Corpsmembers.

Corpsmembers as a group are bright and learn rapidly, despite the fact that the traditional education system has failed them. On the average, corpsmembers read on a sixth grade level. Therefore, effective teaching should be oral, and not rely on written materials such as brochures and pamphlets. In addition, corpsmembers must see how health information relates to their own lives. For example, there were many complaints by corpsmembers from urban backgrounds about being taught the treatment of snakebite, until the instructor pointed out that poisonous snakes had sometimes been seen near the dormitories in rural centers.

A vital ingredient in Job Corps health education is the corpsmembers' assumption of a major role in deciding what material should be taught. This participation is particularly important for those who are already disenchanted with the school system. For instance, the first health education session begins with a discussion of the high-risk health concept and ends with the classmembers selecting the order in which they would like to discuss 11 health topics of prime importance. In our program we have structured the health education sessions to maximize class participation. The instructor does not stand in the front of the room and lecture. He serves chiefly as a resource person and facilitator for the discussion, asking questions and pointing up issues.

Implementation of the Health Education Concepts

Initially we asked a group of ex-corpsmembers to work with us since we felt that, having recently completed the Job Corps training, they were "experts" on what Job Corps enrollees would want to know about health and what teaching methods might be most effective. As we developed a variety of teaching modules, this group of ex-corpsmembers provided valuable reactions and insights into the material.

For example, a first aid module was initially designed as if the class were composed of medical or nursing students. The first topic involved teaching mouth-to-mouth resuscitation and closed chest massage. Not surprisingly, the ex-corpsmembers responded by saying, "Forget that stuff — and tell us what to do if someone is shot or stabbed or has taken an overdose of barbiturates." We followed this suggestion, and now the first aid module begins with the instructor asking the classmembers how many of them know a person who has died

from a stabbing or gunshot wound. He then asks how many people in their neighborhood have had serious accidents and are now disabled, how long it would take an ambulance from their community to reach an emergency room, and how far a 24-hour emergency room is from their home. These questions set the stage and encourage corpsmembers to start thinking about their own experiences. The corpsmembers begin to realize that they live in hazardous areas in which emergency medical care is scarce. Then they can see the need for each of them to know first aid in order to keep his friends and relatives alive and minimize their disability until they can receive medical care. Only at this point in the session does the instructor discuss mouth-to-mouth resuscitation, cardiac massage, and control of bleeding.

The format of the teaching modules varies greatly. Corpsmembers never know when they walk into the classroom whether there will be a controversial poster on the wall, or whether they will listen to a tape recording, watch a movie or slides, or have a group discussion.

In addition, supplements are being developed on special health problems of the American Indians, Americans with Spanish surnames, Asian-Americans, and blacks. These will allow the instructor both to better understand the cultures of corpsmembers and to make his teaching best suit the needs and backgrounds of his class. For example, the supplement on the American Indian includes such topics as "The People," "The Reservation," and "Concepts of Health and Illness and Indian Beliefs," which furnish a background for teaching health education. Many folk beliefs provide a natural introduction to deeper understanding of health concepts. Thus, the instructor does not begin by attacking the traditional Indian healing system; instead he shows ways that the new information can be assimilated into the older ideas.

Impact of the Health Education Program

If the health education program accomplishes its goals, providers of health services at Job Corps centers will see many changes. With a good health education program, corpsmembers will be more aware of health matters and will ask more questions and, if the experience of OEO Neighborhood Health Centers

is any indication, they will probably request more health services, particularly for previously ignored conditions.

In addition, the health education program should improve the enrollees' understanding of their common health problems and permit a more effective utilization of health services at Job Corps centers. Health services personnel have an excellent opportunity to provide personal health education which can supplement what corpsmembers have learned in the formal health education program. Such a partnership between the health education and health services personnel can greatly improve the overall health of corpsmembers.

COMPREHENSIVE PRENATAL SERVICES IN A MANPOWER TRAINING PROGRAM FOR YOUNG ADULTS

By

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Hal Timmons, M.S.W.***

and

Scott H. Nelson, M.D., M.P.H.****

Introduction

It is generally agreed on the basis of considerable research that pregnant teenagers and their offspring are at high risk for medical, social, emotional, and educational problems. Over 250 programs for "comprehensive" prenatal care have been developed to improve the prognosis for pregnant teenagers and their offspring. However, all these programs combined cover less than one quarter of those girls requiring coordinated intervention for pregnancy.

Poor adolescents who become pregnant are at even higher risk than their peers from average income families. They often do not have access to any of these special programs and are unlikely to make satisfactory alternative arrangements for quality medical care and supportive services. At the same time, they are likely to have their pregnancies cause the abandonment of educational and vocational goals.

Of the 50,000 young adults who enter Job Corps annually, about 30 percent are women. Along with other Job Corps enrollees, they take part in an intensive health education program that aims at providing enrollees with enough accurate information to allow them to make responsible individual decisions about their health needs. The health education program includes discussion of human

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sexuality (including family planning, venereal disease, and contraception). Contraception is offered to all corpsmembers who request it. Informal discussion of sexual problems with dorm advisors, counselors, and health service personnel is encouraged.

Description of Project

Despite the availability of contraception and many opportunities to discuss aspects of sexuality with peers and resource people, pregnancy among Job Corpswomen is not uncommon. Therefore, Job Corps has continually needed to explore improved ways, within a residential institutional setting focused on job training, of meeting the needs of its enrollees who become pregnant while actively engaged in the program.

From 1967 the pregnancy policy had been as follows:

> An enrollee who has been medically diagnosed as pregnant regardless of when conception took place, will be medically terminated as soon as appropriate plans have been developed for off-Center prenatal care, delivery, and related social services. When pregnancy is diagnosed in an enrollee who is graduating within a relatively short period (4 to 6 weeks), her medical condition should be the determining factor as to whether or not this enrollee will be allowed to complete the program. In all other cases, termination should be effected as soon as practicable.

This policy created a number of problems for Job Corps centers and corpswomen that left its advisability open to question:

- Corpswomen who thought they were pregnant delayed coming to the infirmary as long as possible in order to try to complete their training before they were mandatorily terminated. They thus were delayed in discussing the pregnancy and their options relating to it with helping center staff. Prenatal care, including education related to gestation, labor, delivery, and infant care was likewise postponed.
- Most corpsmembers forced to leave Job Corps due to pregnancy before completing vocational training were not returning to finish their training after the birth of their children. In many

cases they felt the responsibility of motherhood precluded job training. Also, it was often difficult to make adequate and reliable arrangements for child care. Job Corps centers were anxious to be able to offer additional services to pregnant corpswomen that would permit their continuation in and completion of the program.

- Many corpswomen were returning home to areas where comprehensive programs for high-risk pregnant teenagers were not available. In most of these areas there were no programs to help prepare the woman for responsible parenthood.

To address these problems, the National Job Corps Health Staff decided to test an alternative policy that would permit enrollees becoming pregnant after entering Job Corps to remain in the program through the seventh gestational month. In doing this, the feasibility and costs of such a policy change also needed to be assessed. A decision was made to pilot test this alternative policy at one Job Corps center for women and the pilot study was termed "The Pregnancy Research Project."

The Charleston Job Corps Center for Women in Charleston, West Virginia, with 345 enrollees, was selected as the potential site for the Pregnancy Research Project. Initial discussions among center administrative staff produced a negative reaction based on apprehensions that:

- Charleston, a conservative community, would react unfavorably to retention of pregnant enrollees at the Job Corps center.
- The Job Corps center would become a haven for pregnant girls.
- Other centers would attempt to transfer their pregnant corpswomen to Charleston.
- Much additional staff time would have to be spent with pregnant enrollees.
- Premature births might occur unexpectedly on center.
- Pregnant enrollees would use pregnancy as a reason to stay out of class.

- Pregnancy might be associated with increased difficulties in adjusting to center life, leading to disruptive behavior.
- Enrollees might purposely become pregnant to take advantage of the increased services and clothing allowance.

Despite these concerns, the center administrative staff agreed that a program that would permit pregnant enrollees to complete a training program already begun and was supportive and rehabilitative in focus would be worth evaluating on a trial basis.

A M.S.W. social worker with experience working with young unmarried mothers was hired as project coordinator. The duties of the coordinator included:

1. Providing counseling to pregnant enrollees and, with the assistance of the center physician, arranging for the provision of prenatal care to each pregnant enrollee until she left the center.
2. Explaining to all enrollees the Job Corps policy for retention, termination, and readmission of pregnant corpswomen.
3. Consulting with each pregnant enrollee to determine her wishes and plans as they are affected by her pregnancy and considering these factors carefully in helping determine the appropriate disposition for that enrollee.
4. Providing referrals for social services, medical care, and possible child care at the time of termination.

The center director, center physician, and coordinator of community relations presented the project in detail to the Community Relations Council, a group of citizens from the community that acts as a liaison to the center. The reaction was favorable.

Before the implementation of the project, a center staff meeting was held by the center director and assistant director with individuals from each program area department. The history and goals of the project were discussed and opinions were sought. The project coordinator also disseminated information about the program and invited reactions from all staff members.

The center formed a committee to provide overall direction to the project and coordinate medical, vocational, educational, and social service components.

Department heads held floor meetings with enrollees and their residential advisors to discuss the initiation of the project. In the discussion the girls were told, "You are not expected to go out and get pregnant," and "No one wants an unplanned child," but, "In the event you do become pregnant, we will see that you get all the help you need." Enrollees were encouraged to seek out the special medical and support services available if they became pregnant. New enrollees were informed of the project during center orientation.

As had been the case previously, a corpswoman with a positive pregnancy test at the time of her initial Job Corps medical evaluation was medically terminated and referred to health and social services near her home. When pregnancy was diagnosed at any time after the initial medical evaluation, the corpswoman was offered counseling from the pregnancy coordinator, residential advisors, and counselors. A decision on whether to continue in training or terminate was made on the basis of the consensus of the corpswoman and her various advisors. General guidelines for retention in the program included:

1. Strong interest in continuing in Job Corps (for an unemancipated minor, depending on applicable local laws, the responsible person's concurrence is also required).
2. Good physical health and ability to continue training in her chosen vocation, as determined by the center physician.
3. Sufficient emotional stability to continue to benefit from the program, with the casework support of the pregnancy coordinator.
4. Reasonable expectation of completing the vocational training program or a defined segment of the program before the end of her seventh month of pregnancy.
5. Ability to adjust to the group living situation and perform ordinary household tasks without requiring excessive modification of normal center routine.

There was a definite bias on the part of the counselors toward encouraging continued enrollment whenever this was compatible with the well-being of the corpswoman.

A corpswoman who chose to maintain her enrollment was provided regular and continuous medical supervision by the center physician and nurses, individual and group counseling, referral to health and social agencies at the completion of her training, and followup of referral with continued monitoring and support throughout the period of delivery and early adjustment to motherhood. If she was unable to complete her training before leaving to have her child, she was encouraged to reapply and finish the program.

Staff members kept careful diaries of the time they spent providing counseling and medical care for these women, and the costs of materials and outside services were accounted for in detail.

Results

Continued Enrollment: The choices made by the 27 women who were discovered to be pregnant after enrollment between July 1, 1970 and June 30, 1971 are shown in Table I.

Table I

DECISIONS AS TO CONTINUED ENROLLMENT
MADE BY 27 JOB CORPS ENROLLEES

Continue pregnancy and continue enrollment	15
Terminate enrollment	8
Terminate pregnancy and continue enrollment	4

Of the 15 women who chose to remain in the program and continue their pregnancies, 2 were graduated within 6 weeks of the diagnosis of pregnancy. These two women, along with the four who aborted (one spontaneously, three therapeutically)* would have been allowed and encouraged to complete their training under the old pregnancy policy. The remaining 13 corpswomen would have been terminated under the old policy. These 13 corpswomen are referred to as "participants" in the discussions that follow.

* Therapeutic abortions were handled as elective surgical procedures, with corpswomen strongly desiring termination of pregnancy referred to a reputable clinic in a locale where this procedure is legal.

Educational Experience: Of the 13 "participants," 9 completed their training and 4 completed meaningful segments of their training (i.e., all except the on-the-job training segment). None who decided to participate dropped out. Their average length of enrollment after the diagnosis of pregnancy was 18 weeks. Pregnancy was diagnosed at an average of 10 weeks gestation. Under previous policy, the maximum length of enrollment after the diagnosis of pregnancy would have been 4 - 6 weeks, but most often enrollees were terminated within 2 weeks.

Social and Psychological Adjustment: Class absenteeism among the participants was 6 percent as compared with 12 percent for the Job Corps center as a whole. The center staff reported a decrease in disciplinary problems among participants as compared with the participants' own prepregnancy behavior.

Participants and their counselors reported that individual counseling and group discussions provided both knowledge and emotional support in dealing with the adjustment to pregnancy and in making future plans. Nonpregnant corpswomen reported that they also learned from the formal and informal discussions and that they perceived the program as being helpful to the participants.

An interesting and largely unexpected benefit resulting from the demonstration project was its reported effect on the other corpswomen and the center staff. Discussions of unwed pregnancy, contraception, sexuality, prenatal care, and childrearing became far more common among the corpswomen. The residential advisors became more willing to lead discussions of such topics. The staff appeared to become more open to discussion not only of the problems of pregnancy but also of all personal problems faced by corpswomen. They became willing to face problems which previously had been avoided, and they became involved and committed in a more personal way than previously had been evident. The presence of obviously pregnant corpswomen seemed to exert a humanizing influence on the entire center. The initial apprehensions of the center staff proved to be without foundation.

The Charleston community expressed no overt negative reaction to the pregnant corpswomen living and working in its midst. Employers and community social agencies were uniformly cooperative.

The rate of pregnancy at the center fell to its lowest level in 6 years, 2.4 percent. The staff attributed the lower rate of pregnancy to the more open discussion of sex and to an increase in use of family planning occasioned by the presence of pregnant corpswomen. Rates for the years 1966 through 1971 are shown in Table II.

Table II

RATE OF PREGNANCY AT CHARLESTON CENTER
1966-1971

Years	Corpswomen Pregnancy Rate
1966	3.0%
1967	3.4%
1968	4.6%
1969	3.1%
1970	4.2%
1971	2.4%

Costs: The total cost of providing comprehensive medical and social services to the 13 participants was $6,319, distributed as shown in the first column of Table III. This total cost includes the costs which a Job Corps center normally must bear when enrollees become pregnant. The additional cost — the cost which can be attributed to retaining pregnant corpswomen longer than under the preexisting policy — was $351.63 per participant, or approximately $84 per participant per month. When distributed among the entire center enrollment, the additional cost is $14.24 per corpswoman per year, which is less than 0.5 percent of the usual annual cost per corpswoman at a Job Corps residential manpower training center.

It is difficult to quantitate the dollar benefit of the project and therefore difficult to make a financial comparison of costs versus benefits. However, it is clear that under the old policy a pregnant enrollee was frequently unable to continue in Job Corps long enough to complete the program or a defined segment thereof. Consequently, under the old policy, the investment in her partial training was most often lost. The costs of increased turnover of corpswomen associated with early termination are difficult to quantify, but are apparent when

consideration is given to the normal costs incurred by the recruiting, screening, transportation, orientation, and partial training of new enrollees. All of these are direct Job Corps financial losses.

Table III

PER CAPITA COST OF PREGNANCY-RELATED SERVICES FOR 13 PARTICIPANTS

	Total Direct Costs	Additional Costs of New Policy
Medical Care		
Physician time	20.31	12.02
Nurse time	10.61	6.62
Laboratory, hospital, and consultant fees	95.70	88.56
Medical supplies	7.03	5.98
Total Medical Care	133.65	113.18
Support Services		
Counselor-coordinator, clerk and consultation	243.46	146.36
Telephone	13.25	1.35
Maternity clothing	95.74	90.74
Total Support Services	352.45	238.45
TOTAL	486.10	351.63

Note: The total cost of the contract to carry out this demonstration was $17,615, of which $6,238 was for evaluation and $2,549 for contractor's fee and overhead. Program operation costs were $8,828; $6,319 for participants, $1,883 for nonparticipants, and $626 for equipment. The additional cost was calculated by assuming that the amount spent on nonparticipating women represented the usual cost of caring for pregnancy under the old policy. These "usual" costs were subtracted from the total to arrive at the "additional" cost.

In the larger perspective, corpswomen leaving the program before completion have fewer skills and reduced opportunities to find satisfactory employment. They are more apt to have to look for welfare assistance and less likely to become productive taxpaying citizens.

Discussion

The Job Corps experience substantiates the contention that the availability of contraceptive services does not preclude the need for provision of services for pregnant young women. Although no study was conducted to determine the "reason" for these pregnancies, it was the impression of the pregnancy coordinator that some girls had an active desire for a child, while some had an insufficient grasp of their chances of becoming pregnant by having unprotected intercourse and did not use contraception at all or used it only occasionally. Some corpswomen appeared to have a fatalistic attitude, not actively desiring a child but feeling resigned to whatever happened as if it was out of their control.

One of the major responsibilities of the pregnancy coordinator was helping the corpswoman make a personal decision regarding the continuation of her pregnancy. Frequently it took some time before the corpswoman would admit the pregnancy to herself and deal with whether or not she was prepared for responsible parenthood. The pregnancy coordinator worked with those corpswomen who were unemancipated minors to inform their families. Family pressures generally militated for continuing the pregnancy.

Three of the corpswomen requested and received therapeutic abortions. Job Corps considers therapeutic abortion a normal surgical procedure which, within budgetary constraints, is performed in a high quality setting in acceptance with the corpswoman's wishes. When the corpswoman is an unemancipated minor her parent or guardian's concurrence is required. In each of the three cases the corpswoman remained in Job Corps after the abortion.

Permitting pregnant women to remain in the Job Corps makes that institutional setting a more realistic reflection of the outside world. The fact that a pregnant corpswoman is accepted by her peers and the staff and community reduces the chance she will try to hide her pregnancy or seek an illegal abortion. By making the diagnosis early, appropriate medical care and nutrition can be provided starting in the first trimester. This is essential if the risks to both mother and fetus are to be minimized.

Conclusions

Manpower training can make a significant difference in the employability and self-image of young men and women. It can help to prepare them for more responsible parenthood by providing the skills to enhance income production. A residential setting such as Job Corps can also provide a forum for discussion of parents' responsibilities to children, family planning, and all aspects of human sexuality.

The demonstration pregnancy project showed that a substantial proportion of young women who become pregnant while enrolled in a residential job training program will, if given the opportunity, choose to complete their training. It seems reasonable to extrapolate that other training programs could become more responsive to the needs of young women by adopting a similar policy. The cost of retaining pregnant women in training, including the cost of access to any additional medical care and counseling, is small when compared to the value of the additional training such women receive and the total use of a personal development program involving women of childbearing age.

The setting of Job Corps is much like that of a secondary school, with the main difference being the residential nature of the Job Corps program. The approach to pregnancy herein described would seem eminently applicable to the majority of secondary educational institutions. Although a number of school systems have initiated programs for pregnant students, the majority still have policies which punish a teenager for becoming pregnant by excluding her from normal educational opportunities. Such policies clearly prevent young mothers and mothers-to-be from pursuing self-determined goals and becoming self-sufficient. A number of young women entering the Job Corps for vocational training and basic education were forced out of conventional schools due to pregnancy and found few options for receiving the training they needed to find satisfactory employment.

The Job Corps pregnancy project not only showed that having pregnant women in a residential manpower training program caused little or no disruption, but also provided evidence that their presence could be a very positive factor in stimulating more open discussion of human sexuality and promoting more sensitive interaction among enrollees and staff.

Incorporation of comprehensive prenatal services, including counseling and medical care, into a residential training program permits the following:

1. An atmosphere conducive to early diagnosis and early instituting of necessary medical care.
2. A setting in which an experienced social worker can provide emotional support with a full understanding of such factors as a pregnant woman's performance in her training program and adjustment to her living situation.
3. A situation in which a pregnant woman has ready access to counseling and peers and staff around her who are willing to discuss her problems with her.
4. Coordination of a pregnant woman's medical care and social work support so these will interfere only minimally with her participation in her training program.
5. Coordination of referrals so that when the pregnant woman completes her training and/or leaves the program, the best available medical and social service referrals for continuing care and support have already been arranged.

The Job Corps Pregnancy Research Project conclusively demonstrated the advantages of retaining pregnant women in Job Corps. As a result, the policy pioneered at the Charleston center is being implemented at all Job Corps centers with women enrollees.

THE SOLO PARENT PROGRAM

By

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In recent years, critics of welfare and social programs for poor and disadvantaged Americans have increasingly advocated welfare reform, family assistance, and child development services. Central to their proposals are the notions that (1) the best time to ameliorate significant developmental deficiencies is when a child is under 5 years of age, and (2) young families can benefit most from educational and manpower training programs when their parenthood status is recognized and attention is directed toward their responsibilities for their children.

Job Corps started to address itself to these issues early in 1970 when it planned the "Solo Parent" program for mothers enrolled in Job Corps who had young children. The goal of the program was to provide a residence for mothers and children, services for the children, and a number of supportive services — all of which would encourage the mother to complete her manpower training, and thereby pursue her choice of a job.

The Solo Parent program was also a response to the growing concern of the Job Corps staff over the high rates of absenteeism, sudden and frequent interruptions in training often due to emergencies at home, and the generally short stays that characterized the performance of adolescent mothers enrolled in the program and that compromised the ability of the young women to successfully complete their desired training.

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The Atlanta Residential Manpower Center was selected as the site for the Solo Parent program. Enrollees of the all-female center come from all parts of Georgia, with the majority from the nine-county area near Atlanta. At any one time there are 350 enrollees at the center, 215 in residence and 135 daily commuters. Of the residential corpsmembers, 35 to 40 are enrolled in the Solo Parent program at any one time.

The basic education focus of the center's overall program, as in other Job Corps centers, is on reading and mathematics. (The Job Corps program is designed to lead to a high school equivalency diploma.) In addition, vocational training in nursing, clerical and business skills, or cosmetology is available to corpsmembers at the Atlanta center. Solo Parent program participants are encouraged to select a vocation, such as nursing or business skills, that will allow them to spend as much time as possible with their children.

A thumbnail profile of the corpsmembers at the Atlanta center shows that 82 percent are single, 65 percent have not graduated from high school, and 66 percent are ages 16 through 19.

The Solo Parent program has two components: (1) the teaching of child care skills, or parenting skills, in a family setting, and (2) the provision of child care through the child development center (CDC), which is designed to accommodate 50 children ages 6 months to 6 years. During the first year of operation (July 1970 - June 1971), 87 mothers with 110 children participated. It is important to note that 75 percent of these children were under 3 years of age, i.e., below the minimum age for many traditional day care centers.

Parenting Skills

The goal of the parenting skills part of the program is to help the mothers, most of whom are young and inexperienced, become confident, capable parents. The mothers are taught about the physical and emotional care of their children, and learn how to teach their children, how to take care of them when they are sick, and many other techniques of child care.

Center staff members teach mothers about the purchasing of childrens' clothing and toys, housekeeping, and other skills. A counselor assigned to the

residential unit helps the mothers with problems that may occur there. In addition, a child psychologist meets with them twice a month in group sessions. Health education is taught by the center nurse. Since the mothers enrolled in the Solo Parent program live with their children in apartments at the center and are responsible for the preparation of breakfast and dinner, the head of the center food services counsels them on menu planning, nutrition, budgeting, and food preparation. She also encourages the mothers to let their children participate in the buying, preparation, and cooking of meals.

A critical part of the parenting skills program is the parent-teacher conference. The conferences are unusual because of their location and frequency and the range of material discussed. The meetings generally take place either in the mother's family home or in her apartment at the center. Not unlike the physician's house call, the at-home meetings create a more relaxed atmosphere and provide the staff member with an opportunity to observe how the mother lives and the pressures to which she may be subjected. In many day care centers, parent-teacher conferences are held on a quarterly basis, and are limited to a discussion of the child. At the CDC, the conferences are held twice a month. The meetings usually begin with a progress report on the child, but the mother is encouraged to discuss whatever she wishes with the teacher, including problems she may be having with her husband, boyfriend, members of the family, or teachers. Fathers are invited to attend, but their attendance has been poor. The staff encourages the widest possible latitude in the conferences, because they believe that anything that troubles the mother will be reflected in the behavior and the development of her child and will interfere with the mother's ability to successfully complete the job training program.

Sometimes a child's progress, observed with the help of a teacher, can be a motivating factor for the mother. An example is a 19-year-old unsure mother of two, who enrolled in the program with little motivation to do well. Approximately 2 months after she entered Job Corps the staff noticed a dramatic change in her attitude and accomplishment in the training program. This change corresponded to her excitement about her child's language development at the CDC, which she discussed and followed with the child's teacher.

Child Development Services

Recent publicity and discussion on child development have delineated the difference between traditional day care in which children are generally cared for, fed, given a nap, and entertained but receive no real educational input, and child development services in which every effort is made to promote the child's total psychosocial development. The CDC at the Atlanta Job Corps center has a child development focus, and seeks to provide both freedom and structure to a child's environment.

A day at the center begins with free play. During this period the older children choose among crayons, paints, clay, dolls, balls, and other toys, and the 10 infants, aged 6-8 months, crawl, pat, rock, and generally explore their environment. Later the older children go to more structured activities, such as story hour, while the infants return to their cribs. Each crib contains an infant stimulator or other materials which become progressively more complex. Most adolescent parents are surprised to learn that even the environment for a very young child can be made creative and stimulating.

Each age group except infants spends about 2 hours daily on language development; specific lesson plans and instructional materials are utilized for these activities. Toddlers, aged 19 months - 2½ years, work on verbalization, recall, and lengthening attention span. Three-year-olds are told a story to which the teacher expects them to listen in its entirety and then repeat the phrases they remember. Kindergarteners are asked not only to recount the story they have heard but also to discuss and creatively interpret it.

In language development, talking toys and flannel boards on which the teacher pins such things as numbers, letters, and pictures of animals, reinforce words and clarify concepts. Tape cassettes are used to teach phonics. Kindergarteners also practice letter writing.

Snacks of various tastes and textures, recess, music (folk, classical, soul, and rock) quiet period, and outdoor play make up the rest of the day. The mothers pick the children up for lunch, which they either make themselves or buy in the center cafeteria. When the children return for a nap they learn how to set up cots, put on sheets, and serve their snacks.

This overview of a typical day gives some indication of the range of learning experiences that are provided in the child development center — from the serving of food (which involves not only physical coordination but also social skills) to language development, rudimentary reading, and comprehension of numbers.

The Impact of the Solo Parent Program

After the first year of operation, Job Corps evaluated the Solo Parent program. The evaluation sought to measure the impact of the program on:

1. The job training performance of the mothers who participated in the Solo Parent program.
2. The corpsmembers' perceptions of the Solo Parent program. (This included not only the participating mothers, but also nonmothers and nonparticipating mothers.)
3. The attitudes of the center staff and the Greater Atlanta community.

The evaluation had several limitations: Most of the women were enrolled in vocational training which required 6-9 months, and thus were still completing their training at the time of the evaluation. Thus, two measures, "reason for termination" and "length of stay," had limited statistical value. Secondly, at the time of the evaluation the CDC had been operational an inadequate period for assessment of the long term effects on the corpswomen's life situations and the children's cognitive and affective development. Finally, a quantitative measurement of the progress of child development for each child enrolled in the CDC could not be accomplished because of the changes in the program as the CDC assumed operational status.

To measure the effect of the Solo Parent program on the performance of the participants, three groups of corpsmembers were compared:

1. Program mothers (those enrolled in the Solo Parent program)
2. Nonprogram mothers (mothers who were not enrolled in the Solo Parent program)
3. Nonmothers

All three groups were matched on the basis of race, urban or rural background, entry reading score, and residential status.

Data on attendance and termination dates, reasons for termination, and general behavior were analyzed for all three groups. Length of stay was selected as the most significant measurement of the impact of the program on the mothers' performances, since it has been positively correlated with employment, salary level, and completion of high school equivalency diploma.

It was found that program mothers stayed 252 days on the average, compared to 154 days for the nonprogram mothers and 189 days for nonmothers.

The program mothers not only had a longer length of stay but also had higher completion rates than the other two groups. They completed the program nearly six times more often than nonprogram mothers and four times as often as nonmothers. In addition, the program mothers resigned less frequently and left without explanation less frequently than the other two groups.

Three questionnaires were developed to test the corpswomen's perceptions of the Solo Parent program. In general, all three groups were positive about the program, although, not surprisingly, the program mothers said they felt they learned more about parenting skills than the other groups. Specifically, they mentioned learning how to prepare healthy foods for their children, how to take care of children when they are sick, how to make them behave, and how to understand behavioral problems. The nonmothers also reported learning parenting and related skills such as budgeting and housekeeping.

The program mothers also said their children had done well at the center, mentioning especially that their children had learned "letters and words, how to play with other children, how to talk better, how to be less shy, and the difference between right and wrong." They also felt that the CDC was helping to meet their children's emotional and physical needs.

Center staff members were given an open-ended questionnaire about the advantages of the CDC's supportive services. They made five major points, saying that the program (1) allows the mothers to continue their education and training, (2) encourages the children to develop, (3) strengthens the parent-child relationship, (4) provides nonmothers with an opportunity to be around children, and (5) assures the mothers that their children will receive good care. The staff also volunteered that participants in the Solo Parent program seemed more mature and better motivated than other Job Corps enrollees.

The Greater Atlanta community, including recruiters for the center, was sampled about its perceptions of the program. Many noted that the CDC served as an inducement, attracting young mothers to enroll in the training program. Moreover, the recruiters felt that many mothers every year decide against enrolling in the Job Corps program in Atlanta because of lack of space in the child development center.

In summary, the parenting skills and child development services provided for the children of adolescent mothers in training did make a difference in the mothers' program performances. Program mothers stayed longer, completed more often, and generally were judged by the staff to be better motivated and more mature than the other women at the center. Though there was no formal attempt to evaluate the children's progress, teachers noted significant developmental changes in the majority of the children.

A COORDINATED SICKLE CELL PROGRAM FOR ECONOMICALLY DISADVANTAGED ADOLESCENTS

By

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Introduction

This paper describes the development of a coordinated sickle cell program in Job Corps. Starting in mid-1969, the Job Corps Health Staff became increasingly aware that many corpsmembers were greatly concerned about whether or not they had "sickle cell." From all reports, almost all these corpsmembers had inaccurate information. They were unaware of the difference between sickle cell trait and sickle cell anemia. Most felt that "sickle cell" in any form was very dangerous to their physical health or meant that one could not have children. Some had heard that individuals with sickle cell trait often died before reaching adulthood. Common ailments such as upset stomachs and muscle aches were being interpreted as proof of having sickle cell anemia. Few corpsmembers understood the genetic transmission of the sickle gene and virtually none understood the risk of having

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sickle cell anemia for a child born of two parents with sickle cell trait. Some enrollees felt that sickle cell trait and sickle cell anemia were fictitious conditions fabricated by white supremacists wishing to keep blacks subjugated. They reasoned that if sickle cell anemia were a serious problem, they would have heard more about it before. Despite the fact that the majority of corpsmembers are black, concerns about sickle cell were also voiced by other ethnic groups.

In response to the apparent rampant misinformation, the Job Corps Health Staff decided to consider the development of an education, testing, and counseling program concerning sickle cell trait, hemoglobin C trait, and sickle cell anemia and its variants that could be incorporated into the routine health care every Job Corps enrollee receives.

Before deciding to proceed with the development of such a program for Job Corpsmembers, we weighed the advantages and disadvantages. We were concerned that its initiation among a population of young adults with many failures in their pasts and who frequently lacked self-esteem might further increase the level of anxiety about "sickle cell" specifically and threaten self-images and sexual identities. On the other hand, the rash of publicity and dissemination of misinformation promised to heighten anxieties anyway.

Corpsmembers are at a point in their lives when they are gradually assuming more responsibility, including making decisions about their health needs, marriage, and reproduction. Not only are they of an age at which they can understand the implications of having a genetic condition, but they are at a time in their lives when this information is essential for them to make informed individual decisions about their lives. On balance, therefore, it was determined to be in Job Corps enrollees' best interests to incorporate a coordinated demonstration program of education, testing, and counseling concerning common hemoglobinopathies as part of routine health services delivery.

Education

In conceptualizing a program for Job Corps, it was clear that the main thrust would be education about and detection of sickle cell trait and hemoglobin

C trait. The Job Corps Health Staff was aware that a number of corpsmembers would have sickle cell anemia, sickle C disease, and sickle thalassemia, and did not anticipate discovering many cases of these diseases that had been previously undiagnosed. To start, all available educational literature on the effects of hemoglobins S and C and other abnormal hemoglobins in both homozygous and heterozygous states was reviewed. None of the material reviewed appeared adequately tailored to the ethnic backgrounds, language, reading levels, and specific concerns of economically disadvantaged black, Chicano, or Puerto Rican young adults. There was also a dearth of current material on this subject geared to health professionals other than physicians. In reviewing existing programs, the Job Corps Health Staff was concerned that many were operating under conditions that did not preclude inaccurate results of testing, or where the linkage between testing and counseling was not sufficiently close to assure that all individuals with a positive test received counseling. Counseling in these programs was frequently being performed by inexperienced, inadequately prepared counselors and in a number of instances the counselor was directive, e.g., strongly suggesting that couples where both members have sickle cell trait should remain childless. Also of concern were many "campaign" approaches to the detection of sickle hemoglobin where this effort was not integrated into an ongoing health care and counseling setting.

Pains were taken to avoid these problems in formulating an overall program for Job Corpsmembers. From the beginning the Health Staff looked at how education, testing, and counseling could most appropriately fit into the Job Corps health care delivery system. The Health Staff worked with minority health educators, health education teachers at Job Corps centers, minority health professionals, and corpsmembers themselves to develop a short brochure giving accurate factual information about sickle cell trait and sickle cell anemia in language that could be understood and accepted by Job Corps enrollees. Sickle cell posters with the same motif as the brochure cover were also prepared. During the same period, a group of experts in sickle cell counseling and hemoglobinopathies was assembled to cooperate

with the Job Corps Health Staff in writing a sickle cell handbook.[3] This handbook provides up-to-date, factual information about the most common hemoglobinopathies and includes principles of treatment for patients with sickle cell anemia and its variants. It was written for physicians, nurses, and allied health professionals at all Job Corps centers. In addition, a guide for counseling corpsmembers with sickle cell trait was prepared.[1] This document, appropriate for both health professional and lay sickle cell counselors, contains basic information of Mendelian genetics focusing on genetic transmission of S and C hemoglobins. Even more importantly, it discusses in detail the psychosocial impact of telling an individual that he has a genetic condition such as sickle cell trait. Other topics covered are common misconceptions, the role of malaria in the increased prevalence of the sickle gene in Africa, the reason that these genes are prevalent in black Americans, the common expressed and unexpressed concerns of individuals with sickle cell trait and hemoglobin C trait, and means of dealing with these. The counseling guide describes a sensitive and nondirective approach to explaining options about reproduction. Those individuals doing sickle cell counseling at the Job Corps centers have indicated that it is very helpful.

A number of testing modalities were considered. However, after comparative analysis, hemoglobin electrophoresis seemed clearly the best method. Aside from the advantage of being able to distinguish sickle cell anemia and other variants of sickle cell disease from sickle cell trait, electrophoresis alone is capable of uniformly detecting hemoglobin C trait, which occurs in about 2 percent of American blacks and with lesser frequency in other racial groups. It was felt that with any other method (such as the dithionite test) Job Corps would sometimes be in the position of informing a young adult that he did not have sickle cell trait when, in fact, hemoglobin C trait was present. In our experience, despite any qualifications we expressed about the test method and its inability to discover many changed hemoglobins, a corpsmember would interpret his test result to mean that there was "no blood problem in the genes." Such an individual with C trait could knowingly select a person with sickle cell trait as a mate and be

surprised to have a child affected with sickle C disease, without being aware that the child was at risk for that condition.

Because about 85 percent of corpsmembers are from specific ethnic and racial groups (primarily black, Chicano, and Puerto Rican) at considerable risk for having S hemoglobin and because a corpsmember is not always aware of all the different geographic areas from which his ancestors have come, we decided to make testing available to all entering corpsmembers.

At each center a sickle cell coordinator was chosen from the health staff. This individual was made responsible for the appropriate distribution of all written materials, for ensuring that testing proceeded smoothly, and for keeping track of all testing results to make certain that all individuals with a positive test received prompt counseling. At each center several sickle cell counselors were designated from among existing health and counseling staffs on the basis of their knowledge of and interest in this problem and their sensitivity to the concerns of minority adolescents from poverty backgrounds.

To ensure careful monitoring of the testing phase of the program and to obtain quantitative hemoglobin electrophoresis at the lowest cost, a central laboratory was chosen to test samples from all Job Corps centers. Test tubes and mailers were sent to all centers by this central processing laboratory. Only after all supplies had been received on a center and the sickle cell counselors and health professionals had indicated to the center sickle cell coordinator that they were thoroughly familiar with all the written materials, including the counseling guidelines, did the Job Corps Health Staff give permission for the center to start its sickle cell program. To ensure that counseling was being provided in a sensitive and nondirective manner, and that the health professionals and sickle cell counselors had a sufficient grasp of the relevant factual information to ensure accurate communication to enrollees, expert consultants (many of the same group that helped in the development of the written documents) visited each center and spent at least one full day with those involved in the sickle cell program there. Specially prepared

questionnaires* were administered by the expert consultants to the sickle cell counselors to obtain an objective measure of their understanding of the subject.

The program was initiated in April 1972. Every entering Job Corps-member receives the sickle cell brochure during his orientation period. Within the first few weeks at the center, if he has no objections, his blood is drawn and sent to the central laboratory for both a hemoglobin determination and a quantitative hemoglobin electrophoresis. The results are returned to the sickle cell coordinator on both a lab slip and a wallet-sized card. The result is entered into the health record and the corpsmember receives the wallet-sized card to keep. This card states, "I have been tested for changed hemoglobins by quantitative hemoglobin electrophoresis and found to (be) (have)_____ _____." Corpsmembers with positive test results receive individual counseling at the time they receive their test results or within several days thereafter. They also receive another copy of the sickle cell brochure (stapled to their cards).

Sickle cell counselors are instructed to cover the following topics in every initial counseling session with an individual who has sickle cell trait:

1. What the counselee understands about sickle cell trait and sickle cell anemia.
2. The nature of sickle cell trait and sickle cell anemia, and how they differ from each other.
3. How a person gets sickle cell trait and sickle cell anemia.
4. The geographic and racial distribution of sickle hemoglobin contrasted with other genetic conditions.
5. The origin of the sickle gene, including the role of malaria.
6. What happens in individuals with sickle cell anemia when red blood cells become sickled.
7. The types of medical problems caused by sickle cell anemia; the absence of medical problems (except in rare instances) in individuals with sickle cell trait.

*"Questions for Job Corps Sickle Cell Counselors," developed by Job Corps in cooperation with the genetics unit at Howard University Medical School, is included at the end of this article.

8. The variable life span of individuals with sickle cell anemia contrasted with the normal life span of individuals with sickle cell trait.

9. The genetic transmission of the sickle gene; the percentage risks in one's children for both sickle cell anemia and sickle cell trait (including discussion of hemoglobin C if appropriate) depending on the genetic constitution of the mate.

10. The importance of each person with sickle cell trait making individual decisions concerning reproduction and choice of mate.

11. The alternatives for preventing the occurrence of sickle cell anemia. Toward the end of the counseling session the counselor administers a short verbal questionnaire designed to test the enrollee's grasp of certain key concepts and to guide the counselor in deciding which areas require further discussion. If it appears necessary, a second session is arranged. In any case, every enrollee counseled is assured of the continued availability of the counselor, should he have additional questions.

Results of Testing

Table I shows the presence of various common hemoglobinopathies among the first 16,418 enrollees tested over the period of 6 months. Most of the findings are in general agreement with previously reported studies. Several points are worth mentioning. By using quantitative hemoglobin electrophoresis we hoped to be able not only to identify abnormally migrating hemoglobins, but also to make a presumptive diagnosis of beta thalassemia trait. However, difficulties in obtaining reproducible A_2 levels in repeat specimens from the same individual led to abandoning this objective. The dithionite test is performed on all samples with electrophoretic bands migrating like hemoglobin S to distinguish other hemoglobin variants from hemoglobin S. To this point we have found four individuals with hemoglobin G Philadelphia trait.

The prevalence of sickle trait was 3.84 percent in Puerto Rican corpsmembers. The 0.22 percent of Mexican/Latin American corpsmembers

Table 1

COMMON HEMOGLOBINOPATHIES IN JOB CORPS ENROLLEES BY RACE

Race	Number Tested	Hemoglobin AA		Hemoglobin AS[3]		Hemoglobin SS		Hemoglobin AC[4]		Hemoglobin SC	
		No.	%[2]	No.	%	No.	%	No.	%	No.	%
Black	11,182[1]	9,960	89.07	942	8.42	9	.08	246	2.20	16	.14
Puerto Rican	469	451	96.16	18	3.84	0	—	0	—	0	—
Mexican/Latin American	906	904	99.78	2	.22	0	—	0	—	0	—
Caucasian	3,426	3,416	99.71	5	.15	0	—	4	.12	1	.03
Caribbean (other than Puerto Rican)	37	35	94.59	2	5.41	0	—	0	—	0	—
American Indian	374	374	100.00	0	—	0	—	0	—	0	—
Oriental	24	24	100.00	0	—	0	—	0	—	0	—
All Races	16,418	15,164	92.36	969	5.90	9	.05	250	1.52	17	.10

1 Nine enrollees with hemoglobinopathies not in any of the categories above are included in the total number tested but not listed under a specific category.

2 Because percentages are rounded off, the total percentage does not equal 100.00 in all cases.

3 The average percentage of S hemoglobin in individuals with sickle cell trait is 37.8 ± 4.4

4 The average percentage of C hemoglobin in individuals with C trait is 41.4 ± 4.9

with sickle cell trait is lower than expected on the basis of previous reports from Mexico and other parts of Latin America.[2] No clear-cut explanation for this difference is apparent. In Caucasians the prevalence of sickle cell trait was 0.15 percent, not substantially lower than the prevalence in Mexican/Latin Americans. No hemoglobinopathy was found in any of 374 American Indians tested.

Most corpsmembers with sickle cell anemia or variants were aware that they had "sickle cell anemia" before coming to Job Corps. However, several enrollees found to have sickle C disease had not been aware of the diagnosis. For corpsmembers with sickle cell anemia and sickle cell variants we provide counseling, supportive medical care, including hospitalization when necessary, and careful referral upon termination for both health care and social services. A number of corpsmembers entering with sickle cell anemia and variants are medically capable of completing their vocational training.* Enrollees entering with this problem are counseled to choose a vocational area that is not too physically demanding. For example, such an individual would be counseled to opt for electronic assembly rather than carpentry or automobile body repair.

Problems

It is the Job Corps' impression that the program has provided the factual information and counseling necessary for corpsmembers to understand these health conditions and, when necessary, to make responsible individual decisions relating to these. However, it would be misleading to suggest that the development and implementation of this program were without problems. Some of the difficulties encountered were:

- Difficulty in developing readily comprehensible written materials for corpsmembers that not only contained all the necessary information but also stimulated enough curiosity and interest to be read. In our experience, enrollees are much more likely to

* All Job Corps applicants with chronic medical problems are screened prior to entry. Those whose previous medical history indicates a probable ability to function in the Job Corps setting are accepted.

assimilate and retain information presented in a film, and we have prepared a 33-minute color film on sickle cell trait and sickle cell anemia to be used in the health education program for all Job Corps enrollees.*

- Difficulty in training individuals with limited background knowledge of hemoglobinopathies and genetic counseling to be sickle cell counselors. Even after having read the "Guidelines for Counseling Corpsmembers with Sickle Cell Trait" and having received one or two full days instruction by an expert in sickle cell counseling, a number of center sickle cell counselors have continued to retain only limited information as determined by discussions with the expert and questionnaire scores. In a few cases it has also been necessary to replace center sickle cell counselors because they have not approached genetic counseling in a nondirective manner.

- Difficulty in ensuring that all enrollees are coming away from the counseling session with sufficient factual information and that all their concerns have been addressed. It is impossible to monitor what each counselor covers in each counseling session. A form has been developed to test the corpsmember's understanding of key concepts about sickle cell toward the end of the initial counseling session.** Unfortunately, a review of these has shown that the effectiveness of information transfer is very variable and in some instances less than desirable.

- Difficulty in assessing the impact of the program. It is the feeling of those involved in the program at Job Corps centers that anxieties in enrollees concerning sickle cell anemia and

* Information concerning rental and purchase of this film, "Sickle Cell Anemia and Sickle Cell Trait," is available from the Chief, Job Corps National Health Staff, Manpower Administration, Department of Labor, Washington, D. C. 20210.

** "Corpsmembers Sickle Cell Evaluation Form," developed by Job Corps in cooperation with the genetics unit at Howard University Medical School, is included at the end of this article.

sickle cell trait have been reduced. However, due to some of the difficulties noted above and because the average length of stay in the program is approximately 6 months, the Job Corps setting is not well suited to an assessment of retention of information over time, attitudinal changes, or reproductive histories. Clearly, more attention to evaluation of sickle cell programs and materials is needed to ensure that stated objectives are being achieved.

QUESTIONS FOR JOB CORPS SICKLE CELL COUNSELORS

Please give the best answer to each question by placing a circle round the letter beside it.

1. What is the chance of having sickle cell anemia if neither of your parents had the sickle cell gene?

   a. 50%
   b. 25%
   c. 0%
   d. 100%

2. Sickle cell anemia occurs among people from different geographical areas. Select the incorrect answer.

   a. Caribbean
   b. Mexico
   c. Africa
   d. Japan

3. The sickle cell gene affects

   a. the blood type
   b. the hemoglobin in the red blood cells
   c. the shape of the blood vessels
   d. the blood pressure

4. In a person with sickle cell anemia, there are sickle cells that can be observed

   a. at all times
   b. occasionally
   c. only when there is too much oxygen circulating in the blood
   d. only when there is too little oxygen circulating in the blood

5. Having the sickle cell trait is like having sickle cell anemia

   a. True
   b. False
   c. Don't know

6. If you have one sickle cell gene

   a. all of your children will get the gene
   b. none of your children will get the gene
   c. each child has a 50:50 chance of receiving the gene
   d. you can't have any children because of the gene

Malaria causes sickle cell anemia

a. True
b. False
c. Don't know

8. When a person has a sickle cell anemia crisis

a. he can't talk
b. he usually is in severe pain
c. he can't see
d. he usually has convulsions

9. Only females can have sickle cell anemia

a. True
b. False
c. Don't know

10. One out of about every ten Blacks has the sickle cell trait

a. True
b. False
c. Don't know

11. Hemoglobin is

a. the substance that makes the blood red
b. the substance that makes the skin yellow
c. the substance that makes the skin brown
d. the major component of fingernails

12. Having sickle cell trait does not usually affect your health

a. True
b. False
c. Don't know

13. The sickle red blood cell

a. passes through small blood vessels easily
b. is carrying more oxygen
c. is unable to pass through small blood vessels easily
d. is destroyed by the body more slowly than the normal red blood cell

14. If one parent has sickle cell anemia and the other parent does not have either sickle cell trait or anemia, the children would have what chance of having sickle cell trait?

a. 25%
b. 50%
c. 0%
d. 100%

15. Having sickle cell trait is an advantage in areas where there is much malaria

a. True
b. False
c. Don't know

16. If both parents have sickle cell trait, what is the chance that their first child would have sickle cell anemia?

a. 25%
b. 50%
c. 0%
d. 100%

17. If both parents have sickle cell trait, what is the chance that their third child would have sickle cell anemia?

a. 25%
b. 50%
c. 0%
d. 100%

18. If one parent has sickle cell trait and the other does not have either sickle cell trait or anemia, what proportion of their children would likely have sickle cell anemia?

a. 25%
b. 50%
c. 0%
d. 100%

19. All races and nationalities have some genetic problems

a. True
b. False
c. Don't know

CORPSMEMBER SICKLE CELL EVALUATION FORM

Name of Corpsmember_____ Name of Sickle Cell Counselor_____ Date_____ Center_____

1. Sickle cell trait is a disease.

   - ☐ True
   - ☐ False
   - ☐ Don't know

2. Sickle cell trait and sickle cell anemia are found in both men and women.

   - ☐ True
   - ☐ False
   - ☐ Don't know

3. People of all races and nationalities have genetic problems.

   - ☐ True
   - ☐ False
   - ☐ Don't know

4. Why do people have sickle cell anemia or sickle cell trait?

   - ☐ They are born with it.
   - ☐ They catch it through sexual contact.
   - ☐ They catch it like measles.

5. If two people with sickle cell trait have children, the chance for each child to be born with sickle cell anemia is:

   - ☐ One in two (50%)
   - ☐ One in three (33%)
   - ☐ One in four (25%)

6. Sickle cell trait helps to protect against the effects of malaria.

   - ☐ True
   - ☐ False
   - ☐ Don't know

7. Sickle cell trait is much more common than sickle cell anemia.

   - ☐ True
   - ☐ False
   - ☐ Don't know

REFERENCES

1. "Guidelines for Counseling Job Corpsmembers With Sickle Cell Trait." March 24, 1972. Available from Job Corps Health Staff, Manpower Administration, Department of Labor, Washington, D. C. 20210.

2. Livingstone, Frank B. Abnormal Hemoglobins in Human Populations: A Summary and Interpretation. Chicago: Aldine-Atherton, 1967.

3. "Sickle Cell Handbook for Health Professionals in Job Corps." March 24, 1972. Available from Job Corps Health Staff, Manpower Administration, Department of Labor, Washington, D. C. 20210.

AN APPROACH TO EFFECTIVE GENETIC COUNSELING IN SICKLE CELL ANEMIA AND OTHER HEMOGLOBINOPATHIES

By

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Genetic counseling has played a relatively minor role in the practice of medicine for a number of years. Recently, however, it has assumed markedly increased significance since it is now possible to detect a number of kinds of hereditary illnesses through simple and reliable biochemical tests at a stage when the disorder can be either prevented or ameliorated. Patients have also become more aware of the preventive aspects of medicine and wish to have genetic information in order that they might make decisions about reproduction. The combination of these factors, the recent upsurge of interest in family planning, and the increased availability of abortion have combined to bring genetic counseling to a position of relative significance in the practice of modern medicine.

Although considerable clinical experience in genetic counseling has been recorded, there is little information about the effectiveness of counseling as a preventive measure or about the most effective means of doing genetic counseling. Therefore, counseling methods are in a state of flux, and over the next several years intensive study may show that different approaches to counseling are more effective than those methods used in the past.

The background and guidelines presented here are based upon the general principle that the patient or counselee should make his own decision based upon an adequate knowledge of the condition in question and the risk of recurrence of that condition in his offspring.

Definition of Genetic Counseling

Genetic counseling means the clear communication of all of the medical, psychological, social, and genetic information related to the condition being discussed. This includes the prognosis for the condition, as well as the possible consequences

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of various modes of action. A discussion of the genetics of the condition and the genetic recurrence risk is only a part of the counseling process. Not only must the emotional makeup and social setting of the individual be considered, but potential programs of treatment and prevention must be given careful consideration. Counseling is an educational process and it should provide emotional support, but it should not be directive, i.e., intended to bias decisions made by the counselee.

Since genetic counseling (sometimes referred to as educational counseling) is to a major extent an educational process, the burden is on the counselor to communicate all the information needed by the counselee in order to make his own reproductive, medical, or other decisions. The only time when this general philosophy of self-determination should be violated is when the counselee might take action that is clearly self-destructive or destructive to other individuals.

The Goals of Genetic Counseling

One might list a number of goals of counseling, but four can be clearly delineated as essential:

1. The communication to the counselee of a functional comprehension of the particular disease state in question and the genetic mechanisms that produce it. This includes an understanding of the mechanisms that produce the disease (in this case sickle cell anemia) insofar as they are known and the range of severity of the disease.

2. Attempts should be made to correct any misconceptions that exist about the disease and its relationship to the carrier state. This is particularly true for sickle cell anemia and sickle cell trait, where there is currently considerable confusion in the mind of the lay person about what constitutes trait and what constitutes disease. Considerable effort must be made to relieve any anxiety that is present when the counselee comes for information because it will interfere with communication. This can often be done merely by correcting a misconception. One should also be aware that new information gained through counseling may produce anxiety in the counselee.

3. Whenever couples are at risk to produce a child with the disease, there should be a thorough discussion of alternative reproductive options. In the case of sickle cell trait, this may involve repeated contacts with the couple through which they learn to appreciate any conflicts they may have regarding the seriousness of the disease and their risk to have an affected child.

4. A discussion of the relationship between the person being counseled, his family, and his social setting may be necessary. This is particularly important where there might be conflict concerning the role the counselee should play in a marital or premarital situation.

The overriding consideration in meeting these goals is that of effectively communicating the facts of the situation to the counselee in a way that can be clearly understood, for only then can the information be used in decision-making.

Factors That May Influence the Counseling Process

Since communication is an essential part of the counseling process, a consideration of the factors that influence communication will reveal those that also influence genetic counseling. These include the following: (1) the educational background of the counselee, (2) the emotional background and attitudes of the counselee, (3) the motivation of the counselee, (4) the counselor's attitude, and (5) the counselor's motivation.

In addition to being aware of these major factors, the counselor should work to delineate as many as possible of the minor factors influencing communication in order to do a more effective job of communicating and understanding the problems that the counselee may face. Although counseling sessions may follow a generalized procedure, this procedure should be flexible enough to take into account the factors listed above and other concerns that may arise during the sessions.

A General Counseling Procedure

The counselor should establish a general approach or format for the counseling situation with which he is comfortable. This format should promote

a relaxed atmosphere to facilitate communication between the counselor and the individual being counseled. A format is also needed to ensure that necessary information and considerations will not be neglected. At the same time, the counselor must keep his format flexible enough so that the person being counseled is not discouraged from introducing new information or new or unusual topics.

First, determine the counselee's background, including his educational, marital, psychological, social, and medical status. Try to find out what prior information the individual has about the condition in question. Look carefully for any evidence of stigmatization, inferiority, or hostility that may exist and interfere with the process of communication. This search for information should be conducted in a relaxed, friendly manner; it should not make the patient feel he is being cross-examined. One might even inquire about the counselee's hobbies and other outside interests.

Next, review with the counselee a simple description of the disease, in this case, sickle cell anemia and the factors that produce it. Review the shape and function of the red blood cell and the way the change in its shape produces the symptoms and signs of sickle cell anemia. Discuss the range of the severity of the illness. Point out that the disease may be mild as well as severe. Especially, point out the fact that we do not know exactly how long the patient with the disease will live and that the sometimes quoted figure of 20 years for the average lifespan of an individual with sickle cell anemia is probably not very accurate. The importance of good medical care and the way that it may ameliorate the symptoms of the disease should be emphasized. It may be helpful to point out at this stage that patients who are carriers of the sickle cell trait do <u>not</u> have a mild form of the disease. Emphasize their general freedom from symptomatology found in sickle cell anemia. The counselor may point out the possibility of symptoms due to reduced oxygen for prolonged periods, but stress that such symptoms are rare and not likely to happen to most people, even under possible predisposing circumstances.

Then, point by point, review the difference between sickle cell trait and sickle cell anemia. Emphasize the fact that all individuals carry gene mutations, and that the only difference between them and carriers of the sickle cell gene is that medical science now has a simple method of detecting the carriers of the sickle cell gene. In other words, being a carrier of an unusual gene is a normal human condition. Emphasize at several points in your discussion that carriers of sickle cell trait are normal and should be able to do anything they wish. Furthermore, it should be stressed that patients with sickle cell trait are not obligated to reveal this information in any other medical settings unless they choose to do so. The fact that they are carriers of the sickle cell gene is medical information and should be kept confidential, unless they choose to reveal it.

At this point, it is useful to review the concept of the gene. This means describing the mechanisms of the inheritance of different traits, for example, eye color, skin color, or blood groups. Make it clear that genes are present in the body in pairs and that one member of each pair is transmitted from each parent. When this is clear to the counselee, the mechanism of inheritance of sickle cell disease can then be clearly explained and understood. It is important to emphasize which possible combinations of genes may produce the disease. This can be done through diagrams or drawings. After the genetic mechanism is discussed, it is essential that some method of testing the understanding of this information be used. A sample of mini-tests that can be given to determine whether or not the counselee really understands the genetic mechanism and the recurrence of risk is included at the end of this article.

The most difficult concept to communicate to lay persons, and in some cases to medically oriented individuals, is the statistical aspect of the genetic recurrence risk. It may be necessary to try to illustrate, by flipping coins or using color-coded dice, the fact that the genetic recurrence risk does not change with each pregnancy. On the other hand, one should make the very vital point that in the usual mating of two individuals who both carry the sickle cell trait the majority of children born will be normal and healthy. In other words, the overall odds are in favor of not having children with the disease. This should

be emphasized because the counselee is often aware of families where two or more children have been born with the disease, and not aware of those families where both parents are carriers of sickle cell trait, but have produced no children with sickle cell disease. If the counselee is confused about the genetic mechanism or any other information that has been transmitted, the counselor should go back to that section of the discussion and review the necessary information point by point. This must be done by stimulating as much feedback from the counselee as possible. It is essential to assure the counselee that he is not being tested but that the counselor is merely trying to be sure he has done his job of transmitting information clearly and accurately.

The nature of social reaction to genetic conditions means that there is almost always some emotional component in the counseling setting. The counselor must continually ask himself the following questions: (1) Is my anxiety increasing or decreasing? (2) Is the counselee becoming more relaxed or more agitated? (3) Have I been clearly answering the counselee's questions? (4) Has the counseling experience been satisfactory?

Do not attempt to force the counselee to sit through the counseling session when there is marked emotional reaction. The time of both the counselee and the counselor will be wasted. Reschedule such a person for a return visit.

Ways of Improving the Counselor-Counselee Interaction

Usually, the more interaction that occurs between counselor and counselee, the more effective and fruitful the counseling situation. Any method of promoting this interaction in a positive way will make the counseling session a more meaningful experience for the counselee. The following are ways of promoting interaction:

1. Allow plenty of time for the counseling session. The counseling process must not be rushed. The counselee must not feel he is under pressure to respond quickly to questions or in any way stifle his questions or responses. If there is not enough time to do a complete job, state this clearly to the counselee and schedule a return visit.

2. Try in every way possible (but do not appear paternalistic) to encourage the counselee to ask questions and to express his feelings regarding the situation or the counselor.

3. Repeat essential information more than once at different times during the counseling session.

4. Make it clear to the counselee in any way necessary that communication and interpretation is the counselor's job. The counselee must not be made to feel inadequate or stupid if he has difficulty understanding any concepts. The difficulty in many cases rests with the counselor rather than the counselee.

5. If at all possible, the counselor should tape-record occasional counseling sessions in order to be certain that he is not misstating concepts or stating them in a confusing fashion. This can only be done by listening to self-criticism or by having a competent observer criticize the counselor.

Information to Be Covered in Counseling

There is some essential information which should generally be covered in the counseling sessions. However, this does not mean that in some sessions certain information may not be omitted or other topics discussed, according to the background and understanding of the counselee. For example, knowledgeable counselees may wish to ask questions about the molecular structure of hemoglobin or have detailed questions about the clinical symptoms in sickle cell anemia. Other counselees may have some confusion about the basic reproductive process, and it may be necessary to discuss with them in some detail the production of sperm and egg and their union as the result of sexual intercourse.

It is suggested that a counseling session with an individual who has sickle cell trait be conducted as follows:

1. Review the difference between a normal red blood cell and a sickle cell and how the disease is produced.

2. Describe sickle cell disease in simplified terms.

3. Review the meaning of sickle cell trait, emphasizing the fact that individuals with the trait are normal.

4. Review from several perspectives the genetic or hereditary mechanisms that will result in sickle cell disease. At some point in the session, administer the mini-test to the counselee in order to determine his understanding.

5. Review the relationship of the sickle cell gene to the disease malaria. Discuss its origin in West Africa and its continued importance in providing protection against the still very serious disease, falciparum malaria.

6. Make it clear that being the carrier of an unusual gene is a normal human condition. Point out the fact that other unusual genes are common in other groups of people, for example, cystic fibrosis in whites and Europeans, phenylketonuria (PKU) in the Irish, Tay-Sachs disease in Ashkenazi Jews.

7. Discuss in brief the possible effect of new research on treatment for sickle cell disease or the possibility of ameliorating the symptoms of the disease by good medical care. In some cases, a discussion of the possibility of intrauterine diagnosis or abortion may be indicated.

This is only a suggested order. It need not always be followed, especially where the counselee wishes to discuss a particular topic early in the counseling sessions.

Remember that anxiety in the counselor or counselee will interfere with communication. Try to delineate anxiety or hostility early in the sessions so that it can be eliminated or reduced and a good flow of communication established.

Assessment of Genetic Counseling

Try to establish some method of evaluating the effectiveness of the counseling situation. This may consist merely of recording the counselor's impression

of the counseling session and the counselee's understanding. It is desirable to have a followup counseling session at some period, usually 2 weeks or more after the initial counseling session. At this session, the counselee may be encouraged to express any reservations he has regarding his understanding of the disease or the genetics of the disease, or the counselee may be questioned in a friendly fashion about his understanding of what he has been told in a previous session. It may be desirable to administer some kind of written evaluation. This should be done in such a way that the counselee does not feel he is being tested.

If it is clear that the counselee is openly hostile, anxious, or nonreceptive in the counseling situation, a new appointment should be made and the entire process should be repeated. This might be preceded by a general discussion of the emotional reaction of the counselee by the counselor or someone who is working with the counselor. Do not try to force ideas on the counselee. Rather, try to convince him through providing factual information or gentle persuasion that the information being provided to him is correct. A counselor should not give any information to a counselee unless he is certain of its accuracy. To give incorrect information only serves to undermine the counselee's confidence in the counselor. Do not hesitate to admit ignorance of a particular fact.

Be certain not to give direct advice to the counselee, even when he asks for it. Provide support, emotional or otherwise, for the counselee, while he works through the feeling he has about a particular area, but don't tell him what to do.

Factual Information To Be Passed Along During the Counseling Session

The following is a list of key facts that might be passed on during the counseling session:

1. Sickle cell anemia is not contagious. It is inherited by passage of a sickle cell gene from each of two parents.

2. Both parents must carry the sickle cell gene in order for them to have a child with sickle cell anemia.

3. If two parents have sickle cell trait, each child born to them has a 25 percent, or 1 in 4, chance of having sickle cell anemia.

4. About 8 percent, or 1 in 12, of black Americans are carriers of the sickle cell gene, and therefore have sickle cell trait. These individuals are normal. An estimated 1 in 500 to 600 black Americans is born with sickle cell anemia.

5. The sickle cell trait protects the individual who carries it against being killed by falciparum malaria, a severe disease present in tropical areas of the world. This disease still kills thousands of people every year.

6. All ethnic and racial groups have diseases common to them. This is the result of the environmental stresses in the areas of the world in which they have lived for many hundreds of years.

7. In general, the severity of sickle cell anemia can be reduced through good medical care.

8. There are other unusual genes for hemoglobin that in combination with the sickle cell gene will produce a form of sickle cell disease.

9. The best method of detecting sickle cell disease or sickle cell trait is by electrophoresis, a special test to detect different kinds of hemoglobin.

10. Sickle cell trait does not become sickle cell anemia. Sickle cell disease does not become milder and become sickle cell trait.

11. No one knows when a particular individual with sickle cell disease will die. Patients with sickle cell anemia can live useful and productive lives as parents and citizens.

MINI-TESTS FOR THE COUNSELEE

Fill in the squares to represent the offspring of the matings shown below:

AS X AS

Father

Mother	A	S
A		
S		

AS X AC

Father

Mother	A	S
A		
C		

AA X AS

Father

Mother	A	A
A		
S		

AA X SS

Father

Mother	A	A
S		
S		

What would be the result if the mother was AA and the father was AS?

What would be the result if the mother was AA and the father was SS?

AN ORAL EPIDEMIOLOGICAL STUDY AT A JOB CORPS CENTER

By

Stewart Shapiro, D.M.D., M.S.C.H.*

and

James Moore, D.D.S., M.P.H.**

Dental disease is the most commonly occurring chronic health problem among Job Corps enrollees, many of whom have never received dental treatment prior to enrollment. Dental programs at Job Corps centers make emergency dental care available at all times. Oral examinations and preventive dental services are required and dental health education is provided. Routine restorative and surgical services are also made available. Center health staffs include full- or part-time dentists who work on center and/or in the private offices of local practitioners.

In an effort to make the Job Corps dental policy and program more responsive to actual enrollee needs, a study was initiated to document the entering dental health status and dental care needs of enrollees. The basic epidemiologic data and utilization data to be accumulated were to be directed toward possible refinement of both the Job Corps objectives for dental care and the dental care delivery programs.

Study Aims and Methodology

The primary aim of the study was to document the oral profile of entering Job Corps enrollees at one Job Corps center. This would establish a baseline that could be used to estimate the amount of dental services required to bring these enrollees to a satisfactory level of oral health.

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**Dental Director, Job Corps, DOL.

The study also aimed at determining the oral status of Job Corps enrollees on the basis of variables such as age, race, place of residence, date of enrollment in Job Corps, and length of residence in a community with a fluoridated water supply. By ascertaining dental health status for each subgroup based on these variables, it was hoped that dental care needs for the enrollees at many other Job Corps centers could be projected.

The study was also intended to investigate sampling methodology to arrive at an adequate sample size for purposes of evaluation and possible replication of this study at other centers. Lastly, part of the study was aimed at investigating the changes in enrollees' dental health profiles while on center and the utilization of dental services by the enrollees.

To achieve these goals the following methodology was employed: (1) an initial sampling of the population at a representative Job Corps center for women was surveyed by dental epidemiologists, and the dental records of the sample population were examined to determine the accuracy of the center records, (2) all available enrollees at the representative Job Corps center received an ADA class II dental examination, and a retrospective study of all dental records was made to determine the oral health status at the time of the initial dental examination, (3) information concerning utilization of health services and productivity of dental staff was collected over a 6-month period, (4) after 6 months, all the enrollees who had entered the center since the original survey and a portion of those who remained on center from the initial survey received a dental examination, and (5) all data were compiled and analyzed.

Each enrollee's oral profile was assessed, including general oral hygiene and evidence of caries and periodontal disease. In conducting this study the survey team* described the condition of the oral cavity using several indices

*The survey team consisted of Dr. Shapiro, Alex Drabkowski, D.D.S., M.P.H., Paula Schachtel, and Marjorie Furman. Dr. Drabkowski is Chief, Dental Service, Baltimore City Hospital, and Assistant Professor, Department of Community Dentistry, University of Maryland School of Dentistry, Baltimore. Ms. Schachtel is Instructor (at time of study, Research Associate), Department of Community Dentistry, University of Maryland School of Dentistry, Baltimore. Ms. Furman is Dental Assistant - Secretary, Department of Community Dentistry, University of Maryland School of Dentistry, Baltimore.

which measure the extent of oral disease and its effects. This description was recorded on special survey forms by the assistants, who also conducted interviews prior to examinations. The interviews provided both the dental histories and the demographic data, i.e., age, race, prior residence, enrollment date, necessary to analyze the contribution of these variables as set forth in the study aims.

Utilization of established measurements of dental health was necessary to assure that findings would be consistent and comparable to previous studies. Three measuring indices, designed to measure evidence of caries, oral hygiene level, and status of periodontal tissues, were employed.

Dental caries activity was measured by the DMF Index,[2] which reflects the total caries experience of an individual by taking into account demonstrable carious lesions or decay (D), missing teeth (M), and fillings (F). The sum of scores for these three categories is expressed as a DMF score. DMF scores were computed both by numbers of affected teeth (DMFT) and numbers of affected surfaces (DMFS). The condition of every surface of every tooth, with the exception of third molars (which usually erupt between the ages of 18 and 25), was assessed and recorded on the dental field survey forms. Carious lesions were diagnosed only if demonstrable beyond any possible doubt. (Possible DMFT scores range from 0 to 28; DMFS scores range from 0 to 140.)

Each enrollee's oral hygiene status was measured by the Oral Hygiene Index-Simplified (OHI-S) devised by Greene and Vermillion,[1] which provides a consistent means of measuring not only overall oral hygiene, but also debris and calculus deposits around the teeth. These conditions are measured by the Oral Debris Index and the Calculus Index, respectively. The sum of these two indices is the Oral Hygiene Index. For both the oral debris and calculus indices, one score is assigned to each of six segments of the mouth (upper and lower left, right, and anterior) with buccal or facial surfaces being examined for the maxillary (upper) teeth and lingual surfaces for the mandibular (lower) teeth. Scores are computed by averaging the scores for a specified tooth in each of the six segments. (Scores range from 0 to 3.) A score of 3 on the Debris Index indicates soft debris covering more than two-thirds of the exposed tooth

surface; for the Calculus Index, supragingival calculus covering more than two-thirds of the exposed surface or a continuous heavy band of calculus around the top portion of the tooth indicates a score of 3.

The periodontal status of enrollees examined was rated through use of the Periodontal Index (PI) as devised by Russell.[4] In utilization of this index, each tooth is assigned a score based on the condition of the gum tissue, i.e., mild gingivitis (1), gingivitis (2), gingivitis with pocket formation (6), and advanced destruction with loss of masticatory function (8). Individual enrollee overall PI scores, the arithmetic average of scores for all teeth, were computed. For this study only the clinical criteria of the PI were used, since radiographs were not employed.

All three indices were chosen with an eye to future comparisons with other studies. The DMFT, DMFS, OHI-S, and PI are the most commonly used measurements of oral health and have the advantage of being used in the National Health Survey. Their use in the dental survey assured that the results of examinations of Job Corps enrollees could be compared with examinations of other persons in the same general age group conducted by other researchers.

Survey Site

The criteria for selection of the study site were that the study should be conducted at a Job Corps center which (1) had on-site dental care, (2) was judged to be representative of the overall Job Corps program, (3) had a center population large enough to supply sufficient data but small enough to allow for examination of all available enrollees, and (4) was located in an area easily accessible by air transportation.

Based on these criteria, the Charleston, West Virginia, Job Corps Center for Women was selected as the survey site. The Charleston center's resident population numbered approximately 325; thus, it could supply an adequate yet manageable number of study subjects. The center had the advantage of being located relatively close to the University of Maryland Health Science Center in Baltimore (where the principal investigator was located) and the Job Corps National Health Staff in Washington, D.C. This proximity simplified logistical considerations such as the transportation of survey teams.

Another advantage in choosing the Charleston center was that the center director and the dentist responsible for on-site dental care displayed interest in the survey and showed desire and willingness to cooperate with survey personnel.

The Pilot Study

A pilot study was conducted in May 1971 to test the procedures outlined for the overall study, identify potential problems, and provide preliminary information on the overall oral health profile of Charleston center enrollees. This pilot study included clinical dental examinations and a review of the dental records of 31 enrollees selected at random (approximately 10 percent of the center population).

The pilot study familiarized survey and center personnel with the procedures set for the major part of the study. In addition, the review of center dental records allowed for comparison of data on the dental records with the results of the survey's clinical examination, a process which tested the reliability and consistency of the center's dental records.

The mean DMFT recorded from clinical examinations during the pilot study was 16.29, while the mean DMFT determined from dental records was 11.96. This mean difference of 4.33 DMFT is statistically significant at the 95 percent level, as is the mean difference of 3.38 for the decayed component alone. (The mean decayed tooth score was 9.54 from actual oral examination and 6.16 from dental record data.) In both cases, data from dental records represents an underestimation of dental health. However, it was felt that the underestimation of the decayed tooth factor was probably caused by (1) differences between clinical diagnostic recording in routine treatment planning and the criteria used in dental survey technique, and (2) small carious lesions not diagnosed in the earlier center examination that had developed into clinically visible lesions between the initial oral examination and that conducted as part of the survey.

The mean OHI-S score for the pilot study subjects was 2.07 (on a scale of 0 to 6), which is indicative of a poor level of oral hygiene. The individual component scores for this index were 1.18 for the Debris Index (indicating debris or stain or both, covering slightly more than the gingival third of examined teeth) and 0.92 for the Calculus Index (indicating a calculus buildup covering almost the gingival third of examined teeth).

The mean PI score for the 31 subjects was 1.72 (on a scale of 0 to 8), which is indicative of well-established gingival inflammation that is overt but does not completely circumscribe the tooth.

Confirmation of Size of Study Population

The pilot study established that the larger proposed study would indeed be feasible and confirmed the choice of the Charleston center as a suitable study site. It was decided to use the entire center enrollee population in the study.*

Initial Cross-Sectional Survey and Record Review

The first field survey of all available enrollees took place in May 1971. Of the 310 corpswomen enrolled at that time, 274 were examined; the remaining 36 were excluded due to leave time, off-center training, or termination procedures in process. All examinations were conducted with a mouth mirror, an explorer, and adequate lighting. No radiographs were used in any part of the clinical examinations and all results are based on visual evaluations only. The average examination time per enrollee was 18 minutes. This entire phase of the study was completed in 3 1/2 days utilizing two examiners.

The Longitudinal Study

For the 6-month period following the initial survey, all dental procedures at the center were recorded and all enrollee terminations were registered with the survey team. (The average length of stay for enrollees at the center during this period was 5 1/2 - 6 months.)

The Final Cross-Sectional Survey

Six months later, two members of the field survey team (including one examiner) returned to the center for the final cross-sectional survey. The same procedure was followed as for the earlier survey, including clinical examinations and dental record reviews for the 168 women who had entered the center since

*However, by using the figures reflecting the variation in DMFT scores of pilot study subjects, survey personnel were able to arrive at the number of enrollees that would have to be examined in a larger center to assure a sampling error of no more than 5 percent (at the 95 percent confidence level) in the mean DMF figures. For the overall Charleston Study, the total sample required was calculated to be 330 subjects. The actual number of enrollees examined (442) exceeded the requirements for an adequate study population.

the initial clinical survey. The investigators, who were interested in comparing any temporal differences in oral health profiles, thus were able to compare findings in two comparable groups examined at different times. The data from these studies were then analyzed for both general findings and specific kinds of information, such as the DMFT, DMFS, OHI-S, and PI scores for different age groups, age-race combinations, dates of enrollment, places of prior residence, and fluoridation histories.

Results

The oral profiles of the two temporally separate study groups (the initial survey's entering enrollees and the final survey's entering enrollees) were so similar that for purposes of this study the two groups are combined and reported as one.

Likewise, the findings in the pilot study (10 percent sample) were sufficiently similar to findings from the total survey population to indicate that in future studies a sampling procedure would suffice.

The average DMFT score was 11.10, composed of 6.65 mean decayed teeth, 2.27 mean missing teeth, and 2.18 mean filled teeth. The average DMFS score was 26.70, composed of 10.88 mean decayed surfaces, 11.34 mean missing surfaces, and 4.48 mean filled surfaces. The average OHI-S score was 1.17, with an average score of 0.43 for the Calculus Index and 0.74 for the Debris Index. The average PI score was 0.78.*

Age-Race Comparisons

Statistical comparisons of DMFT scores by race revealed that the 92 white subjects had a mean score of 11.95, while the 332 blacks had a mean score of 10.98.** (See Table I.) This difference, however, is not statistically

*OHI-S and PI scores were computed for only 384 of the 442 enrollees examined because not all enrollees met the minimal requirement for participation in these portions of the study. For example, completely edentulous enrollees or enrollees with a limited number of teeth present in either arch were excluded.

**Of the 442 enrollees examined, 424 who could be classified as either black or white were included in the age-race analysis. Eighteen enrollees, including Orientals, American Indians, and those who could not be classified because of incomplete information on center records, were excluded.

significant at the 95 percent level. In breaking down the components of the DMFT, blacks had lower mean filled scores at all ages than did whites and, except for ages 17 and 22, higher mean scores for decayed teeth.

Table I

DMFT SCORES BY AGE AND RACE

Mean Decayed Tooth Scores, Mean Missing Tooth Scores, Mean Filled Tooth Scores, Mean DMFT Scores of Enrollees at the Charleston, West Virginia Job Corps Center for Women, by Age-Race.

Age (Yrs.)	Race	N	Mean Decayed	Mean Missing	Mean Filled	Mean DMFT
16	White	6	4.50 (±4.32)*	1.17 (±1.60)	3.17 (±6.34)	8.83 (±8.70)
	Black	12	8.33 (±5.02)	1.83 (±2.66)	0.58 (±1.24)	10.75 (±5.99)
17	White	26	6.62 (±4.46)	1.69 (±2.26)	2.19 (±3.32)	10.50 (±4.90)
	Black	73	6.40 (±4.65)	1.22 (±1.67)	2.00 (±3.30)	9.64 (±5.43)
18	White	23	5.04 (±3.34)	2.91 (±5.80)	3.17 (±4.52)	11.13 (±6.61)
	Black	51	6.69 (±4.68)	1.71 (±2.83)	1.80 (±3.31)	10.41 (±6.14)
19	White	11	5.64 (±3.96)	1.73 (±1.85)	3.09 (±3.62)	10.45 (±3.45)
	Black	68	7.29 (±4.60)	1.54 (±2.48)	1.43 (±2.56)	10.43 (±5.23)
20	White	10	4.00 (±4.78)	5.60 (±7.47)	5.30 (±4.35)	14.90 (±4.75)
	Black	62	7.34 (±4.21)	2.63 (±3.82)	2.10 (±3.25)	12.06 (±5.32)
21	White	7	6.29 (±6.97)	5.14 (±10.19)	2.29 (±3.25)	13.71 (±8.86)
	Black	43	6.91 (±4.47)	2.63 (±3.69)	1.91 (±3.44)	11.47 (±5.88)
22	White	9	7.78 (±3.56)	3.89 (±3.33)	4.33 (±2.69)	16.00 (±4.64)
	Black	19	5.63 (±4.63)	5.79 (±5.66)	3.00 (±3.37)	14.42 (±6.34)
23	White	0	-	-	-	-
	Black	4	8.75 (±2.87)	4.00 (±4.00)	1.75 (±2.36)	14.25 (±3.86)
	White	N = 92				$\bar{x}$ = 11.95
	Black	N = 332				$\bar{x}$ = 10.98

*standard deviation

The difference in mean DMFS scores between whites (31.56) and blacks (25.72) is not statistically significant, and displays age-specific scores similar to those displayed in the DMFT scores. (See Table II.)

Table II

DMFS SCORES BY AGE AND RACE

Mean Decayed Surface Scores, Mean Missing Surface Scores, Mean Filled Surface Scores, Mean DMFS Scores of Enrollees at the Charleston, West Virginia Job Corps Center for Women, by Age-Race.

Age (Yrs.)	Race	N	Mean Decayed	Mean Missing	Mean Filled	Mean DMFS
16	White	6	6.33 (±6.28)*	5.83 (±8.01)	8.50 (±17.50)	20.67 (±26.00)
	Black	12	15.58 (±12.17)	9.17 (±13.29)	2.58 (±5.95)	27.33 (±19.69)
17	White	26	11.08 (±11.19)	8.46 (±11.29)	4.88 (±6.09)	24.42 (±16.96)
	Black	73	10.14 (±10.08)	6.10 (±8.34)	3.70 (±6.15)	20.03 (±15.41)
18	White	23	6.52 (±5.19)	14.57 (±29.00)	7.70 (±12.40)	28.78 (±29.79)
	Black	51	11.92 (±11.36)	8.53 (±14.15)	3.92 (±7.93)	24.18 (±19.44)
19	White	11	8.82 (±7.96)	8.64 (±9.24)	6.00 (±6.00)	23.45 (±10.03)
	Black	68	11.50 (±9.82)	7.72 (±12.38)	2.69 (±4.94)	21.72 (±16.15)
20	White	10	5.90 (±8.14)	28.00 (±37.36)	9.40 (±10.24)	43.30 (±32.68)
	Black	62	11.98 (±8.96)	13.15 (±19.12)	4.45 (±6.76)	29.42 (±22.62)
21	White	7	8.43 (±10.08)	25.71 (±50.94)	3.86 (±5.52)	38.00 (±47.42)
	Black	43	11.23 (±9.67)	13.14 (±18.45)	4.02 (±6.71)	28.65 (±21.40)
22	White	9	12.78 (±6.40)	19.44 (±16.67)	10.11 (±7.36)	53.22 (±39.13)
	Black	19	9.95 (±9.95)	28.95 (±28.31)	6.05 (±6.78)	43.89 (±32.17)
23	White	0	-	-	-	-
	Black	4	13.00 (±6.03)	20.00 (±10.80)	4.50 (±6.15)	37.50 (±11.68)
	White	N = 92				$\bar{x}$ = 31.56
	Black	N = 332				$\bar{x}$ = 25.72

*standard deviation

The difference in OHI-S scores between races was not found to be statistically significant. The mean OHI-S score for the white subjects was 1.16, and for the blacks 1.17. (See Table III.) Although the mean OHI-S age-specific scores vary between age levels, no overall trend is discernible. The mean PI score for whites was .96, compared to .74 for blacks, a difference which is not statistically significant.

Table III

OHI-S AND PI SCORES BY AGE AND RACE

Mean Debris Index Scores, Mean Calculus Index Scores, Mean Simplified Oral Hygiene Index Scores and Mean Periodontal Index Scores, for Enrollees, by Age-Race, at the Charleston, West Virginia Job Corps Center for Women.

Age (Yrs.)	Race	N	Mean Debris	Mean Calculus	Mean OHI-S	Mean PI
16	White	6	0.50 (±0.35)*	0.23 (±0.34)	0.78 (±0.57)	0.43 (±0.41)
	Black	9	0.92 (±0.52)	0.49 (±0.34)	1.48 (±0.82)	0.84 (±0.48)
17	White	19	0.71 (±0.53)	0.50 (±0.48)	1.26 (±0.98)	1.19 (±1.07)
	Black	69	0.72 (±0.41)	0.43 (±0.34)	1.21 (±0.69)	0.75 (±0.66)
18	White	17	0.61 (±0.47)	0.34 (±0.35)	0.99 (±0.79)	0.74 (±0.40)
	Black	45	0.65 (±0.41)	0.39 (±0.37)	1.10 (±0.72)	0.63 (±0.54)
19	White	8	0.81 (±0.60)	0.59 (±0.54)	1.44 (±1.06)	1.08 (±0.96)
	Black	65	0.70 (±0.46)	0.40 (±0.34)	1.16 (±0.77)	0.71 (±0.70)
20	White	10	0.78 (±0.42)	0.48 (±0.46)	1.31 (±0.85)	1.20 (±1.10)
	Black	59	0.74 (±0.47)	0.49 (±0.37)	1.27 (±0.80)	0.81 (±0.59)
21	White	6	0.50 (±0.39)	0.20 (±0.20)	0.75 (±0.57)	0.59 (±0.49)
	Black	41	0.66 (±0.45)	0.47 (±0.42)]	1.17 (±0.83)	0.82 (±0.71)
22	White	9	0.84 (±0.56)	0.60 (±0.52)	1.37 (±0.92)]	1.12 (±0.73)
	Black	17	0.54 (±0.45)	0.33 (±0.38)	0.90 (±0.75)	0.72 (±0.57)
23	White	0	-	-	-	-
	Black	4	0.68 (±0.35)	0.43 (±0.30)	1.16 (±0.65)	0.49 (±0.34)
	White	N = 75			$\bar{x}$ = 1.16	$\bar{x}$ = 0.96
	Black	N = 309			$\bar{x}$ = 1.17	$\bar{x}$ = 0.74

*standard deviation

Comparisons by Place of Residence

When mean DMFT scores were stratified by place of prior residence, average DMFT scores by states ranged from 1.50 to 14.67, as shown on Table IV.* (Place of residence was defined as the state in which an individual had resided for most of her life prior to enrollment.)

Table IV

DMFT SCORES BY PLACE OF RESIDENCE

Mean Decayed Tooth Scores, Mean Missing Tooth Scores, Mean Filled Tooth Scores and Mean DMFT Scores for Enrollees, by Place of Residence, at Time of Admission to the Charleston, West Virginia Job Corps Center for Women.

States With Sufficient Representation to be Considered for Comparison	N	Mean Decayed	Mean Missing	Mean Filled	Mean DMFT
Virginia	91	7.80	2.22	1.38	11.41
Pennsylvania	71	6.56	2.73	2.39	11.70
North Carolina	29	7.59	1.82	1.48	10.97
Maryland	24	4.92	1.79	3.71	10.87
New York	18	4.72	2.22	6.06	13.06
Florida	18	7.50	3.50	1.83	12.78
Kentucky	17	5.24	1.88	2.88	10.00
West Virginia	16	7.19	4.19	2.69	14.06
Washington, D.C.	14	7.57	1.00	1.93	10.57
Georgia	14	5.43	4.00	0.57	10.00
States With Insufficient Representation to be Considered for Comparison					
Michigan	12	9.17	1.58	1.42	12.17
South Carolina	11	7.45	2.73	1.00	11.18
Mississippi	8	8.37	1.00	1.88	11.37
Alabama	7	10.43	1.86	1.14	13.43
Tennessee	7	6.14	0.57	2.00	8.71
Ohio	6	3.67	0.33	4.67	8.67
Louisiana	4	4.75	5.25	3.25	13.25
Delaware	4	7.25	2.00	0.00	9.25
New Jersey	3	10.00	3.67	1.00	14.67
Indiana	2	1.50	0.00	0.00	1.50
Minnesota	2	1.00	2.00	5.50	8.50
Texas	1	8.00	0.00	1.00	9.00
Arkansas	1	3.00	0.00	2.00	5.00
Missouri	1	0.00	0.00	9.00	9.00
Outside U.S.	5	3.00	5.00	2.80	10.80
	N = 386				

*The overall group considered in the analysis of data by place of residence numbered 386. Other enrollees were excluded because of incomplete records or discrepancies between what an individual stated in the interview with survey personnel and what the center records had listed as her place of residence.

Ten states were judged to have adequate representation (14 or more enrollees) to be considered in comparisons between states. These states were Virginia, Pennsylvania, North Carolina, Maryland, New York, Florida, Kentucky, West Virginia, Washington, D. C., and Georgia. Together they contributed 312 enrollees, or 70 percent of the study group.

The mean DMFT score range in this group was 10.00 to 14.06, with Kentucky and Georgia having the lowest mean DMFT of 10.00 and West Virginia the highest mean of 14.06. The overall differences between states are not statistically significant. The mean filled tooth scores are somewhat higher in the northeastern states than in the southeastern states, which suggests that more dental care has been provided to enrollees from the North than to those from the South.

Although the total number of enrollees from individual states is small, certain differences between states on components of the DMFT scores are striking. Of those states with at least 14 enrollees, 4 (North Carolina, Maryland, Kentucky, and Washington, D.C.) with similar total DMFT average scores had enrollees with an average of less than 2 missing teeth. Florida, Georgia, and West Virginia, by contrast, had enrollees with an average of 3.5 to 4.19 missing teeth. Although the number of enrollees from each state is very small, this pattern suggests that in these latter states extraction was favored over restoration as a treatment modality, while the reverse appears true for the four formerly listed states. For Georgian enrollees the average number of teeth filled was 0.57, while in enrollees from Maryland it was 3.71, and in enrollees from New York 6.06. Although the small number of enrollees from each state makes generalization hazardous, on the basis of the enrollees examined it appears that in some states poor children and young adults are more likely to have dental care than in other states.

The DMFS scores and the individual components of this score by state display the same pattern as shown for the DMFT scores.

The variation among states on the OHI-S is not significant, with Georgia showing the lowest mean score of 1.04 and Kentucky the highest of 1.42.

The pattern of PI mean scores by individual states indicates little difference in periodontal status by place of residence. Of the 10 states with

adequate representation, Georgia had the lowest mean PI score with .55; West Virginia had the highest mean score with 1.00.

Comparison by Date of Enrollment

Comparisons of the oral profiles of entering enrollees by date of enrollment to identify temporal differences in oral health status show no long term significant variation. (See Table V.) However, the comparison of DMFT scores by month of entry over a 2-year period (retrospective data obtained from records review) indicates considerable variability, from a high of 15.40 (February 1970) to a low of 8.79 (January 1971). Although the difference between the scores of the 2 months with the lowest and highest mean scores is 6.61, there is no seasonal pattern discernible.

Table V

DMFT, OHI-S, AND PI SCORES BY ENTRANCE DATE

Mean Decayed Tooth Scores, Mean Missing Tooth Scores, Mean Filled Tooth Scores, Mean DMFT Scores, Mean Debris Index Scores, Mean Calculus Index Scores, Mean Simplified Oral Hygiene Scores, and Mean Periodontal Index Scores, by Entrance Date, for Enrollees at the Charleston, West Virginia Job Corps Center.

Entrance Date	N	Mean Decayed Teeth	Mean Missing Teeth	Mean Filled Teeth	Mean DMFT	Mean Debris Score	Mean Calculus Score	Mean OHI-S	Mean PI Score
1969	20	8.10	3.90	2.95	15.10	0.73	0.46	1.22	0.67
Jan. '70	7	6.43	2.43	2.14	11.00	0.56	0.36	0.97	0.61
Feb. '70	5	7.60	4.40	3.40	15.40	0.48	0.40	0.91	1.00
Mar. '70	10	5.70	4.00	2.30	12.00	0.49	0.25	0.79	0.49
Apr. '70	10	7.00	4.20	0.80	12.00	0.57	0.48	1.09	0.52
May '70	11	7.82	2.55	1.00	11.36	0.48	0.41	0.93	0.46
June '70	11	7.00	3.55	1.55	13.00	0.73	0.41	1.20	0.57
July '70	7	6.14	3.71	3.43	13.29	0.71	0.49	1.23	0.85
Aug. '70	19	5.32	3.58	2.11	11.05	0.62	0.38	1.06	0.50
Sept. '70	23	7.96	1.57	1.48	11.00	0.54	0.38	0.97	0.73
Oct. '70	10	8.30	2.50	0.80	11.60	0.51	0.36	0.91	0.46
Nov. '70	14	5.93	1.93	1.50	9.36	0.69	0.43	1.19	0.67
Dec. '70	4	4.00	2.00	4.75	10.75	0.78	0.43	1.24	0.77
Jan. '71	19	5.11	2.00	1.68	8.79	0.75	0.46	1.20	0.68
Feb. '71	24	9.62	1.83	1.67	13.58	0.67	0.38	1.09	0.84
Mar. '71	28	6.36	1.71	3.21	11.29	0.64	0.36	1.06	0.87
Apr. '71	37	7.30	1.19	1.73	10.22	0.72	0.52	1.30	0.83
May '71	41	6.05	2.98	1.83	10.85	0.84	0.52	1.40	1.10
June '71	48	6.42	1.98	2.42	10.81	0.78	0.50	1.32	0.83
July '71	19	6.84	1.74	3.58	12.16	0.56	0.17	0.75	0.57
Aug. '71	63	5.62	1.52	1.98	9.13	0.83	0.46	1.34	1.01
Sept. '71	14	6.71	2.29	3.71	12.71	0.82	0.53	1.41	0.93
Oct. '71	0	--	--	--	--	--	--	--	--

There is a subtle trend toward lower DMFT scores in favor of the most recently entering enrollees, but not to the level of statistical significance.*

There is a trend toward lower PI scores for enrollees who remained on center for a longer period of time, but this does not hold true for the OHI-S scores.

Influence of Fluoridated Communal Water Supply

Individuals who grew up in areas where water supplies were fluoridated had lower DMFT scores than did those from areas with water supplies that were not fluoridated. The data were analyzed to document the effects of fluoridated communal water on the oral health of the enrollees, and the oral health profiles of individuals from various geographical residences with varying exposure to fluoridated communal water supplies were compared.

Dental examinations were completed without prior knowledge of individual's fluoride histories. Enrollees were stratified by fluoride experience from information gained through the interview and records review. Fluoride status of the communities represented by the subjects was obtained from the American Dental Association's classification of towns and cities by communal water supply fluoridation status.

Only those enrollees with a verifiable lifetime history of fluoridated water intake (135) and those with a complete lack of such exposure (188) were compared. The nonfluoridated group had a mean DMFT score of 12.62, while the fluoridated group's DMFT was 9.52. This difference is statistically significant at the .01 level. (See Table VI.)

Comparison of mean DMFS scores shows the same level of statistical significance, with the nonfluoridated group having a score of 32.10 and the fluoridated group having a score of 18.97. The differences in mean OHI-S and mean PI scores between the nonfluoridated group and the fluoridated group are not statistically significant.

*The discussion of variation in DMFT scores is limited, since the DMFT profile of enrollees who terminated in 1970 and early 1971 cannot be epidemiologically estimated, as their records were not available.

Table VI

DMFT, DMFS, OHI-S, AND PI BY FLUORIDATION STATUS

Comparison of Mean DMFT (Decayed, Missing, Filled Teeth) Scores, Mean DMFS (Decayed, Missing, Filled Surfaces) Scores, Mean OHI-S (Oral Hygiene Index-Simplified) Scores, and Mean PI (Periodontal Index) Scores Between Enrollees at the Charleston Job Corps Center Who Were Residents of Fluoridated Communities for their Entire Lifetime and Those Who Were Residents of Nonfluoridated Communities.

	Mean Age	Mean DMFT	Mean DMFS	Mean OHI-S	Mean PI
Nonfluoridated N = 188	19.24	12.62	32.10	1.17	0.82
Fluoridated N = 135	18.35	9.52	18.97	1.16	0.71
		$p<0.01$	$p<0.01$	$p>0.50$	$p>0.10$

Despite the significant differences between the two groups' DMFT and DMFS scores, there is no statistically significant difference between the mean number of decayed teeth or surfaces scores even though in both cases lower scores were recorded for the flouride group. (See Table VII.)

Table VII

DECAYED, MISSING, AND FILLED COMPONENT SCORES BY FLUORIDATION STATUS

Comparisons of the Decayed (D), Missing (M) and Filled (F) Component Scores of the DMF Teeth and DMF Surfaces Scores Between Enrollees at the Charleston Job Corps Center Who Were Residents of Fluoridated Communities for Their Entire Lifetime and Those Who Were Residents of Nonfluoridated Communities.

	Mean DT	Mean MT	Mean FT	Mean DS	Mean MS	Mean FS
Nonfluoridated N = 188	7.11	3.02	2.41	11.72	15.08	5.32
Fluoridated N = 135	6.53	1.17	1.80	9.91	5.85	3.28
	$p>0.10$	$p<0.01$	$p=0.10$	$p>0.05$	$p<0.01$	$p<0.02$

The fluoride group, however, has significantly fewer missing teeth. Also, although the differences in the filled tooth category are not statistically significant, a significant difference is found between filled surfaces. The significant differences in missing and filled surfaces scores provide clear evidence of the mitigating influence of fluoride on the development of carious lesions. These scores are in accord with the reports of many studies that point to decreased time and costs needed to provide adequate dental care to residents of fluoridated communities.

Summary of Conclusions

For the entire group of 442 Job Corpswomen, ages 16 - 23, the entering mean DMFT score was 11.10, comprised of 6.65 mean decayed teeth, 2.27 mean missing teeth, and 2.18 mean filled teeth. Thus, the average entering enrollee had about seven teeth that required restoration.

The mean overall OHI-S score for the Job Corps study group was 1.17, and the mean PI score .78. The Debris Index score of .74 indicates an unsatisfactory level of oral hygiene, and the mean score on the PI indicates that a large proportion of study subjects had significant periodontal disease.

By examining the ratio of mean decayed teeth to the mean overall DMFT (6.65: 11.10) it can be seen that the decayed component, that is the number of teeth which needed restoration at the time of examination, represents 60 percent of the average entering enrollee's lifetime experience with caries. In other words, 60 percent of an enrollee's lifetime dental disease could be treated during tenure in Job Corps.

The overall mean DMFT score of 11.10 is close to the 13.80 found by a National Health Survey conducted in 1962 among young adults, ages 18 - 24.[3] Although the Job Corps study group has a lower total score, the decayed teeth component of the Job Corps group is much higher than that of the National Health Survey sample. (See Table VIII.) The age group at the Charleston center was 16 - 22 years, which is slightly younger than the National Health Survey group. This variation in age may account for some of the differences in the DMFT scores. It should also be noted that the National Health Survey sample came from all economic groups.

Table VIII

NATIONAL HEALTH SURVEY AND CHARLESTON
JOB CORPS SURVEY DMFT

	DMFT	Decayed Teeth	Missing Teeth	Filled Teeth
National Health Survey	13.80	2.10	4.80	6.90
Charleston Job Corps Survey	11.10	6.65	2.27	2.18

Little difference was found in oral health status between corpswomen grouped according to age-race, entrance date, or place of prior residence. Fluoridation history, however, was found to be a significant variable: Corpswomen who had been exposed to fluoridated communal water supplies throughout their lives exhibited significantly lower DMFT and DMFS scores than corpswomen with no history of fluoridated water supplies.

REFERENCES

1. Greene, J. D. and Vermillion, J. R. "The Simplified Oral Hygiene Index." Journal of the American Dental Association vol. 68: 7-13 (Jan.) 1964.

2. Klein, Henry and Palmer, Carroll E. "Dental Care in American Indians." Publication no. 239. Washington, D. C.: Public Health Service, 1938.

3. "Need for Dental Care Among Adults, U. S., 1960-1962." Publication no. 1000, series 2, no. 36. Washington, D. C.: Public Health Service, 1970.

4. Russell, A. L. "A System of Classification and Scoring for Prevalence Surveys of Periodontal Disease." Journal of Dental Research vol. 35: 350-359 (June) 1956.

PREVENTIVE DENTISTRY AND JOB CORPS

By

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Job Corps dental program success is affected by a variety of economic, social, and cultural factors. A Job Corps center's funds and administrative priorities, as well as the previous life experiences of individual corpsmembers, combine with professional attitudes and expectations to shape the outcome of the program. Frequently programs fall far short of the ideal.

The enrollee turnover rate is high in Job Corps, and the average stay on center is only about 6 months. A 45-day delay is required before new enrollees receive dental examinations. Thus, the average corpsmember has about 4½ months in which to have his dental treatment needs met. During that time he must also become familiar with the system, what it offers, and how to obtain those services that are available.

Within that same short time span, Job Corps hopes to provide dental health education and treatment services for the corpsmember in such a way as to minimize both his existing and future dental health care needs. Planning and implementation of a program to meet immediate dental care needs present a real challenge to both administrators and dentists in Job Corps. The integration of preventive dentistry into such programs has generally proven to be an even more difficult task.

It is important to consider what the specific goals and methods of implementation might be in a preventive program. In a positive sense, a dental prevention program would seek to develop in the individual corpsmember the ability to handle his own dental affairs, essentially to become self-dependent, and to feel the self-confidence that new knowledge and skills can bring. Since most dental problems (except possibly dental accidents) are avoidable, a dental prevention program should attempt to prevent, or to minimize, the occurrence of dental disease as a barrier to social and economic growth. It should seek to prevent poor dental habits, poor dental aesthetics, and the loss of teeth, all of which tend to interfere with social relationships

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and self-esteem. Such conditions may also reduce the individual corpsmember's ability to obtain satisfactory employment. One goal of a dental prevention program must be the prevention of any kind of unfavorable dental condition that contributes to general health problems. Ideally this would be accomplished by primary prevention, or prevention before the condition is established, through the avoidance of all negative, preventable pathological processes.

There are, of course, some dental conditions which are not avoidable. For example, cleft lip and palate are developmental defects which are determined prior to birth. Irregular tooth arrangement and tooth enamel deficiencies resulting from conditions existing before birth may also predispose an individual to a high incidence of decay and periodontal problems.

Obviously, the corpsmember can do nothing about these conditions. When he discovers them, they will have already become established. In many cases these conditions may not have been diagnosed prior to the dental examination that corpsmembers routinely receive. What is more important is that corpsmembers understand which problems are developmental, i.e., not preventable, and which they can prevent by application of good preventive dental techniques. Dental personnel must be aware of the corpsmembers' sensitivities to their health conditions, and these should be discussed in a manner understandable to the individual and with awareness of his background, self-image, previous experiences with dentists, and attitudes toward dentistry in general.

Primary dental prevention revolves around the concept of control of dental plaque. The growth of bacterial organisms within dental plaque is essential to the production of dental decay. Although we seek to offset their destructive effects, we cannot actually do much about the fact that these organisms are there. They work in a predictable way, producing acids and destroying tooth structure. Through diet control and good oral hygiene, we can reduce their numbers and deleterious effects.

Secondary dental prevention involves intervention through early treatment of developing pathology that reduces the severity of the dental disease and its complications. At Job Corps centers most corpsmembers are found to have a

significant number of carious and missing teeth and many corpsmembers also have gingival disease. They need to have teeth filled, extracted, and replaced. These procedures constitute secondary prevention in the sense that they reduce or eliminate the need for more treatment or rehabilitation — in essence helping to keep the individual from becoming a dental cripple.

However, dental care provided by professionals is expensive. Most health insurance programs shy away from including dental services because of the large need and high per capita cost. In Job Corps, dental pathology is the most frequent health problem. Many corpsmembers have received medical care as required, but few have had adequate attention given to their dental needs. Unfortunately, the magnitude of the need for fillings, extractions, etc., coupled with the limited average length of stay in Job Corps, makes it difficult for the Job Corps to deliver all the dental care that is desirable. The problem is the same on a national basis, especially among the poor who have not been able to find accessible, affordable dental services.

The magnitude of the problem underlines the need for a primary prevention program. It simply costs considerably less to prevent problems than to care for them after they occur. A good primary prevention program, in contradistinction to a treatment program, can rely primarily on paraprofessionals. The cost-benefit ratio for well-planned prevention programs is very favorable. It is logical to ask why this aspect of dental care programming has not been pushed more in the past. To answer this, one must look at the training and practice of the average dentist. Most dentists have been trained in treatment-oriented programs where prevention has been deemphasized. Moreover, providing preventive services has not been remunerative for the dentist. Yet, dental prevention education and instruction, as prophylaxis, should be reimbursed services. Unfortunately, economic respectability and professional respectability often go hand-in-hand. When this union takes place for preventive dentistry, the more active pursuit of prevention and health maintenance will become increasingly practical.

Basic to an approach to preventive dentistry is a full understanding of the attitudes of the potential consumer toward these services. For many

Job Corps young adults, the dental examination they receive in Job Corps is their first contact with a dentist. Corpsmembers may fear that encounters with dental professionals are always associated with pain. They may not even be interested in receiving care, feeling that they have made it without care in the past and that they are self-sufficient individuals, requiring no outside help.

Dental health professionals must be prepared to relate to corpsmembers on the latter's own terms. They should be aware that corpsmembers may have had unpleasant encounters with health care providers and institutions and that the result of early experiences may be suspicion and hostility. Many corpsmembers feel that health professionals, in the past, have not explained either problem or treatment to them and may feel that health professionals are always doing things to them, rather than for them. Corpsmembers have frequently not been introduced to preventive techniques in either medicine or dentistry. Some have never owned a toothbrush and few have ever heard of dental floss.

Dentists may not understand that many young (and older) people have the attitude, "Why should we bother taking care of our teeth? We're going to lose them one of these days anyway." Too often this statement characterizes the Job Corps enrollee's attitude toward dental health. It has been the experience of his family and friends that it is inevitable for people to have dental pain and to eventually lose their teeth. As far as he knows, people just naturally have these kinds of problems. To be effective, the dentist must understand and bridge the gap of the poverty background, meager education, and cultural differences of the corpsmember.

Dental prevention offers health services personnel opportunities to influence the lives of corpsmembers on a long term basis. One important way is to integrate it into the health education program, not as a separate entity, but as an essential part.

Effective dental health education, including instruction in preventive dental techniques, has a greater impact on a corpsmember's life than the direct services provided to him. A corpsmember who simply has his carious teeth filled but does not understand and pursue a personal dental

prevention program will, within a short time, have more carious teeth which again require extensive dental care. However, a corpsmember who does or does not have all his dental problems ministered to while in Job Corps, but who understands and practices proper toothbrushing and flossing, will have fewer dental problems throughout his lifetime. In addition, he will be more likely to impress upon his own family and peers the importance of using individual preventive dental techniques.

As in health education as a whole, it is vital that the goals of dental health education be clearly defined. While specific educational goals, such as getting an individual to go to a dentist for care, have a place in a dental health education program, a much more basic focus should be problem-solving which is designed to motivate the individual to improve his ability to deal with real life situations.

At some Job Corps centers, the formal health education program includes two sessions on dental self-care, including instruction in brushing, flossing, and using disclosing tablets. The ability of corpsmembers to influence their own dental health is stressed.

In addition to patient education, there are a number of other preventive techniques which are widely used throughout the United States and can be fully exploited in the Job Corps dental health program. One of these is fluoridation. Undoubtedly, some Job Corpsmembers have already benefited by having fluoridated water in the areas in which they grew up. Topical fluoride application has been found to be extremely effective in reducing the incidence of new decay and should be an integral part of every preventive dental program.

The most basic and effective self-administered technique is plaque control. Most decay results from bacterial action on certain sugars producing acid. This action is facilitated by an accumulation of food particles and debris on the surface of the tooth, collectively termed dental plaque. It has been reported that if plaque is removed at least once every 24 hours, decay does not occur. As mentioned above, dental plaque control is self-administered. The dental professional is needed only to provide information, to demonstrate the technique,

and to motivate corpsmembers to apply it. The rewards in applying this relatively simple procedure are tremendous.

The application of a plastic dental sealant over a part of a tooth or the entire tooth, with or without fluoride, is another basic procedure to prevent the occurrence of new decay. When the sealant is used with the fluoride over the entire tooth, the amount of fluoride that is absorbed is about four times that absorbed without sealant.[1,2,3] Experience with sealants over the past 5-6 years suggests that many people are not getting new cavities for a year or more as a result of having received applications of this material. Its possibilities for use in the Job Corps should be explored.

Basic to any institutional dental health program is the proper balance between the provision of dental treatment services and preventive services. This is particularly true for the Job Corps with its special population and this population's special dental health needs. The purpose of the dental health program is not only to meet these needs during the period that the corpsmember is in the Job Corps, but also to prepare him with a mental set, knowledge, and competence to do those things for himself that are going to foster good dental health throughout his lifetime.

REFERENCES

1. Dogan, I. L. "In-vitro Studies on Resin Adhesion to Teeth for Fluoride 'Sealing.' " Abstracted, IADR Program and Abstracts, no. 550: March 1969.

2. Pugnier, V. A. "Cyanoacrylate Resins in Caries Prevention: A Two-Year Study." Journal of the American Dental Association vol. 84, no. 4: 829-831 (April) 1972.

3. Pugnier, V. A. and Jordan, W. A. "The Role of Cyanoacrylate Resins in Caries Prevention." Northwest Dentistry vol. 50, no. 2: 177-179 (March-April) 1971.

HEPATITIS IN ADOLESCENTS

By

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Hepatitis among adolescent patients represents a significant and continuing medical problem. Epidemiological data have always supported the hypothesis that viral liver disease predominates among younger patients, but with the recent advent of teenage drug abuse, this problem has focused specifically on the adolescent and become quite complex.

In the 4 years since the inception of the adolescent medicine program at Montefiore Hospital and Medical Center, the inpatient, ambulatory, and detention populations served by the Division of Adolescent Medicine have totaled 26,000 patients. Of these, 2,400 have had some form of liver disease. This represents approximately 9 percent of all patients seen.

One hundred and seventy-seven of these patients were diagnosed as having active viral hepatitis. Another 2,100 patients were diagnosed as having chronic persistent hepatitis[5] associated with drug abuse. This latter entity was confirmed by liver biopsy in 58 patients. This smoldering form of hepatitis represents the hallmark of liver disease within the teenage population as we encounter this group of patients. Only seven youngsters had chronic active, lupoid, or chronic aggressive hepatitis. Toxic hepatitis was noted in 12 patients, most of whom were inhalant abusers of Carbona cleaning fluid preparation.[3]

Hepatic encephalopathy, a direct consequence of active viral hepatitis, has been seen in 13 patients,[1] with a mortality figure approaching 70 percent within our institution.

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Briefly, then, in teenagers we have observed three major types of hepatitis: acute viral, toxic, and chronic persistent hepatitis associated with adolescent drug abuse.

Acute Viral Hepatitis

Two distinct infectious organisms, both believed to be viruses, are considered the etiological agents in infectious and serum hepatitis. The terms infectious hepatitis virus, short incubation hepatitis virus, or SH antigen negative hepatitis virus are used interchangeably to designate the MS1 strain of hepatitis virus. Patients so infected will become clinically ill within 15 - 30 days after exposure. A second designation, serum hepatitis virus, long incubation hepatitis virus, or SH antigen positive hepatitis virus, is synonymous with the MS2 strain of virus. Infected individuals will become ill 45 days or longer after initial exposure. The specific incubation period has minimal, if any, significance to a single patient, but is terribly important to those involved in domiciliary care, such as a youth detention program in New York City or the Job Corps. One could document the time of exposure and, hopefully, predict the attack rate and time course of a potential epidemic within a dormitory setting. In any index case, the time of prodromal symptoms of nausea, vomiting, headache, fatigue, anorexia, and the loss of a desire for smoking, plus clinical jaundice, could predict illness approximately 15 days later with short incubation virus, or after approximately 45 days or more with long incubation virus. Control and appropriate management techniques could thus be planned. Therefore, the incubation period has immediate relevance for the larger population at risk and not necessarily for the individual patient.

In the past, short incubation virus was thought to be contracted only through the oral-fecal route, and long incubation virus only by the intravenous or intradermal route. This no longer appears to be true. We have seen any number of patients with epidemiologically well-documented short incubation virus who appear to have been infected through the intravenous route. This has occurred either by blood transfusion or self-inoculation because of heroin addiction. Similarly, long incubation virus appears to be transmitted by the oral-fecal route.

Clinically, the diagnosis of infectious or serum hepatitis is determined rather simply if one can calculate the incubation period. Two recent observations of the prodromal phase we have noted with increasing frequency are arthralgia and skin rashes. Recently, the number of patients presenting with joint complaints as the initial symptom has been striking. Secondly, giant urticaria has been seen in 32 patients in the last 6 months as the presenting symptom of infectious hepatitis. Our first approach was to offer symptomatic relief for the itching, but within 2 or 3 days the full prodrome of infectious hepatitis became apparent. This observation has immediate relevance for adolescents entering Job Corps centers. We would not recommend placement within the dormitories or the housing complex in cases of corpsmembers with giant urticaria until the possibility of hepatitis is excluded.

The laboratory evaluation usually includes a variety of serum enzyme determinations to document hepatocellular destruction. The SGOT, SGPT, LDH, gamma glutamyl transpeptidase[2] and alkaline phosphatase will usually be abnormal. The immediate problem that the physician faces, however, is deciding which patient with clinical hepatitis and abnormal serum chemistries warrants admission to an infirmary or hospital. We have not been impressed with the prognostic significance of the specific level of serum enzyme activity or of serum bilirubin in acute infectious hepatitis of short or long incubation viral origin. Obviously, if one patient has an SGOT of 300 while a second has an SGOT of 3,000, there is a considerably greater degree of hepatocellular necrosis in the latter patient, but this may not correlate very well with long term consequences.

There are two complications of infectious hepatitis with which to be concerned. The first is an acute situation, hepatic encephalopathy, with a 70 percent mortality rate. One test that seems to predict progression to encephalopathy is the prothrombin time. All of our patients who have developed hepatic encephalopathy have had prothrombin times of 20 seconds or greater with a control of 12 seconds. The second major complication, but with a much slower, insidious development, is postnecrotic cirrhosis or posthepatic cirrhosis. The diagnostic study to perform if this clinical complication is considered is the sulfobromophthalein determination. Serial observations with

close followup are indicated. A decrease in the BSP retention over time would predict a poor course, while a normal BSP would be associated with a better prognosis.

Guidelines to the management of teenagers with infectious or serum hepatitis must first include the issue of whether to hospitalize or treat such patients on an ambulatory basis.

We would consider hospitalization appropriate if the patient is dehydrated. If he is not dehydrated but not in a position where he can take or prepare his own food, hospitalization is similarly warranted. Also, the patient who displays any irrational behavior, who becomes abusive, argumentative, or somnolent, requires hospitalization or infirmary observation and care. This individual may be displaying early evidence of hepatic encephalopathy.

Any patient who has a prothrombin time greater than 20 seconds with a control of 12 unequivocally warrants admission to a hospital. A prothrombin time in the range of 16 - 19 seconds with a control of 12 seconds is abnormal, but does not necessarily warrant hospitalization.

Lastly, concern of a health professional about the patient, even without anything more specific, is ample reason for hospitalization. In summary, the criteria for hospitalization or infirmary care are dehydration, inability to get one's own food, irrational behavior suggesting early hepatic encephalopathy, a prolonged prothrombin time, or perhaps nothing more specific than concern on the part of the health professional caring for the individual.

The second point in management is the issue of isolation techniques. We recommend stool and hand-washing precautions whether the patient is hospitalized or not. It is important that teenage and young adult patients be able to care for their own excreta properly and be carefully instructed in washing their hands before and after using the toilet. Food and cigarettes should not be passed among these patients, and drinking from the same cup or pop bottle or using the same toothbrush should be forbidden. Contact through kissing may well produce contamination of the partner. (This is, of course, true in both homosexual and heterosexual relationships.) In a group setting such as a Job Corps facility an isolation area in the infirmary is obviously optimal.

Another issue in management is the use of gamma globulin. The patient who is actively infectious will probably not benefit from an infusion of gamma globulin, but intimate contacts of that individual should be offered gamma globulin. We recommend following the general guidelines of the American Academy of Pediatrics, which suggest that 0.02 and 0.06 milliliters per kilogram of body weight be used. The internists associated with our adolescent service tend to use a much higher dose of 10 to 20 milliliters per patient.

Diet is still another aspect of management. We would permit the patient with hepatitis to eat anything he desires and change this rather liberal approach only when the patient is in the first stages of hepatic coma. With the early stage of hepatic encephalopathy we would withdraw a large oral protein load and offer a high carbohydrate diet. It is important that proper nutrition be maintained.

The last point in the management of acute viral hepatitis is the issue of rest. Although activity will tend to increase serum enzyme and bilirubin values, there are no data to support the concept that the course of the illness will be altered. A recently published report failed to demonstrate any serious sequelae related to lack of activity restriction.[6] We would permit the teenager as much activity as he feels he needs.

The overall prognosis of acute viral hepatitis in adolescents, unaccompanied by drug abuse, is excellent. Mortality or serious morbidity are associated with 5 percent or less of the hepatitis cases in teenagers.

Toxic Hepatitis

The clinical presentation of toxic hepatitis is very similar to that of viral infection of the liver, with nausea, vomiting, jaundice, abdominal pain, and abnormalities of serum chemistries. The prognostic value of the prothrombin time and BSP tests is similar to that noted in viral hepatitis. One should always consider the possibility that a toxin may be involved. Drugs such as INH, PAS, erythromycin, tetracycline, phenothiazine, diphenylhydantoin, and a variety of other agents are known to cause acute hepatotoxicity. When there is evidence of abnormal serum chemistries in a patient taking one of these drugs, a decision to discontinue therapy is usually prudent. In most instances, if the drug is not lifesaving, and it usually is not, we recommend prompt discontinuance,

with perhaps the only exception being related to INH therapy.[7] We have followed a significant number of adolescents with active tuberculosis or recent P.P.D. conversion who on INH therapy developed transient elevation of serum transaminase activity. About 10 percent of young people placed on INH therapy have such a transient rise in transaminase values. If the elevation persists, the drug should be discontinued.

We recently appreciated a specific type of toxic hepatitis related to sniffing of Carbona cleaning fluid preparation among adolescents.[3] Carbona contains 1,1,1-trichloroethane, a tertiary halogenated compound very similar to carbon tetrachloride, and produces the same type of acute hepatic necrosis. Of the 12 patients reported, 2 developed acute hepatic encephalopathy, and 2 developed acute renal failure. In our experience, these patients did very well with supportive therapy, although deaths have been described. Drugs do produce a toxic hepatitis, and this etiological category should be considered in the differential diagnosis of hepatitis in the teenager.

Chronic Persistent Hepatitis Associated with Drug Abuse

This syndrome represents the single largest group of patients with hepatic dysfunction cared for by our service.

The clinical experience from the Division of Adolescent Medicine of Montefiore Hospital revealed that, of the 16,800 patients examined during one 30-month period, 3,100 were drug users, i.e., they had used drugs other than those offered when under a doctor's care. Drug misuse was detected either by their own admission or by physical signs of abuse. Of the 3,100 drug users examined, there were 2,200 heroin users. Among this heroin-using group, liver function studies were abnormal in 1,300 patients and all were asymptomatic. These teenagers were clinically well, anicteric, and without hepatomegaly or hepatic tenderness.

The serum chemistries most often found to be abnormal were the transaminases and alkaline phosphatase. If these abnormalities persisted for 12 weeks or longer, percutaneous liver biopsy was performed and rather characteristic hepatic lesions were noted[4,5] in all patients. It would appear that there is a

good correlation between screening asymptomatic adolescent drug users for evidence of liver disease, serum transaminase elevations, and the histological lesion of chronic persistent hepatitis.

Currently, we are uncertain as to whether this lesion represents acute or chronic hepatotoxicity from opiates, talc, lactose, quinine, or other adulterants in the heroin, amphetamine, or barbiturate inoculates. Other etiologic factors may be continued viral infection or an immunologic process. The finding of a smoldering, persistent hepatitis in a large number of adolescent drug users suggests a significant reservoir of chronic liver disease in the teenager. Therapy at the present time consists only of discontinuation of the drug abuse.

In summary, in our experience when presented with the adolescent patient who has either clinical or chemical evidence of hepatic inflammation, the three clinical syndromes encountered most frequently are acute viral hepatitis, toxic hepatitis, and chronic persistent hepatitis associated with drug abuse.

REFERENCES

1. Cohen, M. I. and Litt, I. F. "Evaluation of the Management of Hepatic Encephalopathy." Journal of Pediatrics vol. 80, no. 5: 851-854 (May) 1972.

2. Cohen, M. I. and McNamara, H. "The Diagnostic Value of Gamma Glutamyl Transpeptidase in Children and Adolescents with Liver Disease." Journal of Pediatrics vol. 75, no. 5: 838-842 (Nov.) 1969.

3. Litt, I. F. and Cohen, M. I. " 'Danger Vapor Harmful': Spot Remover Sniffing." New England Journal of Medicine vol. 281, no. 10: 543-544 (Sept. 4) 1969.

4. Litt, I. F., Cohen, M. I., Schonberg, S. K., and Spigland, I. "Liver Disease in the Drug-using Adolescent." Journal of Pediatrics vol. 81, no. 2: 238-242 (Aug.) 1972.

5. Popper, H. and Schaffner, F. "The Vocabulary of Chronic Hepatitis." New England Journal of Medicine vol. 284, no. 20: 1154-1156 (May 20) 1971.

6. Repsher, L. H. and Freebern, R. K. "Effects of Early and Vigorous Exercise on Recovery from Infectious Hepatitis." New England Journal of Medicine vol. 281, no. 25: 1393-1396 (Dec. 18) 1969.

7. Scharer, L. and Smith, J. P. "Serum Transaminase Elevations and Other Hepatic Abnormalities in Patients Receiving Isoniazid." Annals of Internal Medicine vol. 71, no. 6: 1113-1120 (Dec.) 1969.

SKIN DISEASES IN ADOLESCENTS

By

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Dermatologic diseases affect people in three ways: they can cause disability, they can cause disfigurement, and they can occasionally cause death. Although they do not often kill people, they can make life miserable. It is a fact of life that dermatologic disfigurement and personality damage often go hand-in-hand.

It is estimated that in a general practice, perhaps 1 patient in 10 or 15 has a dermatologic problem. The precise diagnosis of a skin lesion is particularly important even in the absence of the life-threatening characteristics of most dermatologic diseases. For example, the importance of differentiating the skin rash of secondary syphilis from a drug eruption is self-evident. Clearly, some knowledge of dermatology is important to physicians whatever their specialties may be, but it is particularly important to those who face patients from 16 to 22 years old, an age group in which dermatologic problems occur frequently.

With relatively little effort any health professional can become familiar with many of the common skin diseases and competent in the diagnosis of these. Between 90 and 95 percent of the skin conditions seen in dermatologic practice or clinics can be handled by the general physician with a little dermatologic knowledge. Between 5 and 10 percent of patients with dermatologic conditions have to be referred to the specialist.

The following are several of the more common problem skin conditions:

Eczema (or dermatitis): The term eczema comes from the Greek root meaning "to boil out of." The Greeks called this condition eczema because they thought something was oozing and boiling out of the skin. The eczemas constitute the largest group of skin diseases, and acute allergic contact dermatitis heads the list of common dermatoses. Eczema is characterized by erythema, vesiculation, crusting — all signs of inflammation. Eczema may be caused by many different kinds of allergens. Although the hands are frequently

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primarily involved, other parts of the body may be involved as well. For example, one patient that I recall had been making cinnamon rolls at a bakery every morning for 20 years. Then all of a sudden he began to notice some erythema, and his eyelids began to get red and swell a little — his hands were carrying the allergen up to the eyelids. He scratched his hands and they became worse — more erythematous and edematous. When he first came to see me, he had his hands wrapped in handkerchiefs to catch the serum that was exuding. Ordinarily, one doesn't think of putting a patient with acute dermatitis into the hospital, but in cases as acute as this one, hospitalization can help to shorten the sickness, shorten the time away from work, and cure the disease quickly.

Early treatment consists of wet dressings. In the old days, we used to employ potassium permanganate soaks or Burow's solution soaks, and these are still satisfactory. Potassium permanganate is of particular value in the presence of infection. However, plain lukewarm water is satisfactory, especially if the patient is itching a great deal. Some cracked ice in the water will help to alleviate the burning, itching, and stinging. Use lukewarm water wet dressings only for perhaps an hour or half an hour three times a day. In the hospital we would wrap each one of the patient's fingers or wrap his hands and keep the wrappings wet with water or Burow's solution, silver nitrate, or potassium permanganate soaks. However, water alone is adequate. If the patient is treated at home, skim milk is a good wet dressing. Any of these dressings can be alternated with calamine lotion or a corticosteroid lotion. Ointments, even a corticosteroid ointment or any petrolatum-base ointment, should be avoided in treatment of an acute eczematous dermatitis. It is best to use a corticosteroid lotion or spray. A corticosteroid ointment may be used only after the patient's condition has improved considerably. If the dermatitis is severe, a very short term course of systemic corticosteroids may be indicated In these situations I frequently begin with 30 mg. a day and taper to none at all over 8 - 10 days. If there are no contraindications, such a short term course of steroids will hasten the patient's recovery a great deal.

Poison Ivy and Poison Oak: These are two of the most prevalent acute allergic contact dermatitis conditions. Linear streaks of vesicles on the skin alert

the physician that he is dealing with poison ivy or poison oak. The treatment for these conditions is the same as that for the eczemas: wet dressings in the early stages, systemic corticosteroids if the condition is severe, and antibiotics in the presence of secondary infection. As the patient recovers, creams and ointments can be used.

For poison ivy and poison oak, the best prevention is avoidance. Hyposensitization by the oral route, the so-called Shelmire system, can be used, but its value is controversial and it should be used only for those people who have to be exposed constantly, such as telephone linemen, forest rangers, and railroad trackmen.

Other Contact Dermatitis Infections: Among the most prominent dermatitic contactants other than poison ivy and poison oak are: (1) paraphenylenediamine, (2) rubber compounds, (3) nickel compounds, and (4) chrome compounds.

Contact dermatitis affecting the feet is frequently confused with fungus infection. Many physicians falsely assume that all eruptions on the foot are caused by fungus. However, allergic contact dermatitis may often affect the feet. For example, one may have a reaction to the rubber cement that is part of a shoe's foundation. If this cement is the causative agent, the eruption is seen on the top of the patient's feet with no lesions on the soles. Generally, when we see an eruption on top of the feet alone, it is not a fungus infection, and we would want to prove the etiology by appropriate testing whenever possible.

Atopic Dermatitis: This is a "first cousin" to contact dermatitis. Atopic dermatitis is seen rather frequently in the age group represented by those in the Job Corps. Localization and distribution of lesions on the body are important in making this diagnosis. The fact that a young man has eczematous areas of dermatitis about the neck and some breaking out in the antecubital fossae should lead any physician to strongly suspect that the patient has atopic dermatitis.

Atopy implies a hereditary element. In as many as 80 or 90 percent of the patients, one can find a family history of asthma, eczema, hay fever, or urticaria. We can almost think of atopic dermatitis as a "genodermatosis."

The other name for it is disseminated neurodermatitis. The "neuro" part of this word does not imply that the patient is psychotic or psychoneurotic, but he certainly has a very definite tendency to have this condition worsen in reaction to nervous stresses and strains. For example, many of these patients have exacerbations that coincide with school examinations or other periods of stress, such as those involving financial or marital problems.

Unfortunately we don't know the whole answer to atopic dermatitis. It usually starts in infancy, when the patient is just a few months old, and gets better when he is about 2. It breaks out again when the child is about 5 and leaves the protected environment of his home to go to nursery school or kindergarten where he is exposed to the stresses and strains of competitive life. It clears up when the child is about age 7, only to flare up again at about 12 years of age when the "storms of adolescence" begin. This lasts off and on until the patient is about 21 or 22 years old, when it clears up and goes away almost as if by magic. Whatever remedy and doctor the patient is using at that time get the credit for the cure, but the real magic is neither the medication nor the doctor; it is time itself. In about 9 out of 10 patients the disease will clear up at ages 21 through 24 and will never come back again. The disease persists after this age in only 1 patient out of 10.

Characteristic of atopy are the sharp localization of the dermatitis, its tendency not to spread, its periodicity in the life history of the patient, and its seasonal exacerbation. Many patients are worse in winter than in summer, and occasionally the reverse is true.

Nummular (disc-shaped) Dermatitis or Eczema: This is a "first cousin" to atopic dermatitis. With this condition, one finds little coinsized eczematous lesions, particularly over the arms and legs. They flare up frequently in winter and improve in summer, but they never seem to go away entirely. Patients can go on in this way for up to 5 years. We don't know why these coin-sized lesions localize on the arms and legs, what causes them, or what accounts for their seasonal flareups and eventual disappearance. As a "first cousin" of atopic dermatitis, nummular dermatitis is treated in the same way, responding usually to corticosteroids given locally or systemically. Never put a greasy petrolatum-base ointment on these lesions; it will make them worse.

Pityriasis Rosea: This disease is common to the Job Corps age group. It makes its first appearance with a "mother spot" or "herald spot," and then about 10 days later the patient breaks out with generalized lesions. If a dermatologist was faced with just a single lesion and didn't see any other lesions, he'd have to consider the possibility of a fungus infection or a drug eruption. Later, if he found that this lesion was followed by a generalized eruption of others that looked like the first one, and he began to see a Christmas tree-like distribution of these, lesions situated along the lines of cleavage, or "festooning" of these lesions, he would be able to diagnose this disease as pityriasis rosea. We suspect this is a viral disease. It can last up to 6 - 8 weeks and rarely as long as 3 months. Throughout its course, except for a slight malaise at the onset, the patient feels perfectly well. Differential diagnosis is particularly important in order to distinguish this disease from secondary syphilis, which it closely resembles. It is a sound rule never to make a diagnosis of pityriasis rosea in an adolescent or an adult without first doing a serologic test for syphilis.

Acne Vulgaris: There is never enough time to deal with the psychic devastation of this disease, how it can warp and twist and virtually destroy a life. "Strange" behavior and withdrawal from social life at the time when socialization with one's peer group is important and attraction to members of the opposite sex heightened, are typical responses of the young person whose face is "all broken out." Acne is not just a cosmetic problem any more than it is a personality problem alone.

Lesions may not be limited to the face, forehead, and neck. In severe cases, cystic and pustular lesions can often be found on the chest and back. In the management of these patients, one must incise such lesions, following the surgical principle of incision and drainage as for any other pus-containing lesion, and also utilize tetracycline therapy. At a recent American Medical Association meeting one of the prominent research workers in dermatology, Dr. Albert Kligman of the University of Pennsylvania, stated that he considers the use of the tetracyclines for acne the most significant advance in acne therapy in the past 10 years. Using tetracyclines for acne over long periods of time

seems to alarm some physicians. They are concerned about drug resistance and about the dangers of side reactions. These and related problems have been investigated to our satisfaction. The one precaution we insist upon with patients on long term tetracycline therapy is to have a blood count done every couple of months to make sure they're not developing granulocytopenia.

There are many reasons for using these drugs in acne. The main one is that tetracyclines are concentrated around the pilosebaceous follicles and so we can use a lower dosage than would be needed for regular antibiotic therapy. We would give a patient, for example, 250 mg. 4 times a day for perhaps 2 or 3 days, then 3 times a day for another 2 days, and finally cut down to 2 times a day after a couple of weeks and then to 1 a day. We would continue him on 250 mg. 1 or 2 times a day until his acne was much improved, which could take months. Along with that we would use a "peeling" lotion. One such simple lotion would be a salicylic acid alcohol lotion. However, in black patients with acne, when salicylic acid in concentrations of 3 to 5 percent is used, peeling and marked hyperpigmentation or darkening of the face frequently takes place. For black patients 1 percent salicylic acid in 70 percent rubbing ethyl alcohol lotion, applied morning and night, is a better method of treatment.

In brief, one management program for acne consists of the use of acne surgery, the tetracyclines, and salicylic acid peeling lotion. Of course one may use more expensive patented preparations such as some of the sulfur-resorcin mixtures or vitamin A acid, but, again with a black patient, if one uses resorcin-containing preparations or even the new vitamin A acid treatment, this often causes too much inflammation and hyperpigmentation.

Seborrheic Dermatitis: This condition is often referred to as "inflammatory dandruff." It is a member of the acne-seborrhea group. Contrary to what most textbooks say, it can occasionally result in loss of hair. It can be very pruritic. For patients with this condition, a sulfur-salicylic acid ointment applied to the scalp along with the usual sulfur shampoos that we're all familiar with, such as Selsun and Sebulex, can be very useful. We should bear in mind that seborrheic dermatitis also occurs behind the ear.

The formula for a sulfur-salicylic acid ointment that is useful for fungus infections and also as an antiseborrheic preparation contains 1/4 percent menthol, 2 percent salicylic acid, 3 percent percipitated sulfur, and a sufficient amount of petrolatum or Aquaphor or Unibase to make 60.0 grams. This should be applied to scalp (or skin) daily as directed. For use on the scalp, this preparation should have a greasier base, such as Aquaphor or petrolatum; for use on the skin a lighter base, such as Neobase or Unibase, is preferable.

Tinea Versicolor: Patients with tinea versicolor, a fungus infection caused by Malassezia furfur, are not uncommon. In a black patient, it tends to have more of a scaling look. It can produce either hypopigmentation or hyperpigmentation. Ideally, one would like to have a potassium hydroxide preparation and a skin-scraping to identify the organisms microscopically. The busy practitioner who may not have a microscope at hand will have to resort to a therapeutic test. The patient should be asked to apply ordinary Selsun to a dime-sized area of skin and allow it to remain overnight. Then the patient should wait a day or two to see if any inflammation occurs at the site of the application. If no reaction occurs, Selsun should be applied once a week for 3 weeks over the areas where the fungus is present and left overnight. The following morning the patient should shower thoroughly to remove the medication. After 3 weeks, most patients are temporarily free of the disease. Patients should be advised that this disease is recurrent, and that medical science knows of no permanent cure.

Tinea Pedis: This common condition is familiar to most practitioners. It is characterized often by maceration and inflammation between the toes and scaling and vesiculation of the soles and sides of the feet. It is best treated symptomatically by daily foot soaks and the use of calamine lotion (or a corticosteroid lotion) for the first week or two until the patient's condition improves. Then antifungal preparations, such as the sulfursalicylic acid preparation discussed earlier, may be used.

At one time it was thought that incorporating fungicidal chemicals in socks or clothing would be of some value as a preventive measure. This has not proven to be the case. A better regimen is based on simple foot hygiene,

including washing the feet daily, keeping them dry, and using foot powder (one of the antifungal agents, such as Desenex), and changing the socks twice a day if the patient has a tendency to sweat.

Tinea Cruris: This tinea involves areas of the groin. It is important to differentiate this from such conditions as simple intertrigo and atopic dermatitis. This can be done by a potassium hydroxide preparation and by culture. Griseofulvin by mouth and sulfur-salicylic acid ointment locally are very effective in tineas of the head and scalp and the upper sections of the body. It is true that griseofulvin is most effective from the head downward, as it is least effective on the feet. It is not efficacious in tinea versicolor or Candida albicans (yeast Monilia infections).

Pseudofolliculitis of the Beard: Many young men, usually blacks, have facial hairs that turn in, so-called ingrown hairs. There is no easy remedy for this affliction. Shaving with any kind of razor, even electric razors, makes the condition worse. If it is permissible for the patient to stop shaving and grow a beard, this is the best method of dealing with this condition. If, as in the Army for example, beards are not permitted, the patient must battle the condition as best he can. He must avoid electric razors or any kind of razor, and use a depilatory cream or powder such as Magic Shave or Jabra. I recommend that the patient use one of the corticosteroid creams to allay irritation often produced by the depilatory preparations. If the patient sticks with this regimen for a period of time he will usually conquer his problem. However, the patient must be advised that he cannot use the depilatory powder every day but only every other day.

NUTRITION IN ADOLESCENTS

By

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and

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To many adolescents, nutrition is something that will take care of itself. They see little need to worry about what they eat because the effects of inadequate nutrition are not apparent to them. Traditional nutritional education with its emphasis on the four food groups and "well balanced meals" is not relevant to the nutritional attitudes and habits of today's adolescents.

A prerequisite to deciding how to approach adolescents regarding their nutrition is an understanding of their current nutritional status. There is little solid information on the nutritional status of American teenagers as a whole and a national survey is clearly needed. There have been, however, reasonably careful assessments of the nutritional status of particular adolescent subgroups. The 1968-70 Ten State Nutrition study used a sampling that included primarily low income individuals.[7] Of all age groups evaluated, adolescents had the highest prevalence of biochemical evidence of unsatisfactory nutrition. The percentages of teenagers found to be either "low" or "deficient" with respect to certain nutritional parameters varied very widely, which prevents generalization from the survey results. For example, the variance among states for four parameters was:

Measures of Nutritional Status	Range of Percentage of Sampled Teenagers "Deficient" and "Low" in States Covered by Ten State Nutrition Survey	
	"Deficient"	"Deficient" and "Low"
Hemoglobin	0.5 - 2.9	6.3 - 31.0
Vitamin A	.0 - 6.0	2.6 - 26.6
Vitamin C	.0 - 2.7	.5 - 13.0
Riboflavin	.0 - 5.3	2.7 - 30.9

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Other studies have indicated that many adolescents do not have an intake of a number of nutrients which is consistent with their "minimum daily requirements." For example, one such investigation found that 60 percent of teenage girls and 40 percent of teenage boys consume less than two-thirds of their calcium requirements.[16]

The difficulty with this type of information is the absence of clinical correlates. None of these studies has found an appreciable prevalence of clinically evident deficiency syndromes associated with inadequate intake of essential nutrients. How much concern should be accorded a low vitamin A value in an otherwise healthy adolescent? Current knowledge does not permit us to answer this question. If physicians and nutritionists cannot explain what a low vitamin A level means, how can they expect an adolescent to become concerned and alter his eating habits to remedy this alleged health problem? The validity of categorizing a certain blood level of a nutrient as "low" or "deficient" is further complicated by biological variability. One individual with a hemoglobin of 9 grams may feel and perform better when it is raised to 12 grams while another may not sense any change. On the other hand, the lack of definitive answers concerning the significance of some of these biochemical "deficiencies" should not lead to a minimization of the general importance of good nutrition for optimal growth and development. When a poorly nourished individual is subjected to stress such as growth, pregnancy, illness, or surgery, it seems reasonable to assume that he or she will have less nutritional reserves to respond optimally to such stress, and the results may be slowed growth, a low birth weight baby, or a slowed recovery, respectively.

To effectively counsel adolescents to develop healthy nutritional habits requires insight into social, cultural, and economic differences both between and within different ethnic and racial groups. The Ten State Nutrition Survey found that within each ethnic group nutritional deficiencies were often more prevalent in the low-income-ratio states than in the high-income-ratio states. About 40 percent of 13- to 16-year-old Mexican Americans in the Ten State Survey had "low" or "deficient" vitamin A levels, contrasted with less than 10 percent of their black and white peers.[7] This and other studies have shown that black and Spanish-speaking teenagers are frequently "low" in riboflavin.[7] In nutritional counseling it is important to be aware of some of the trade-offs in recommending a

dietary change. For example, increased milk consumption would improve intake of both riboflavin and calcium in those currently receiving inadequate amounts of these. However, the long-range effects of drinking large quantities of whole milk are not known, and there is concern that this pattern may correlate with an increased risk of acquiring cardiovascular disease later in life. Also, a substantial percentage of blacks, many Spanish Americans, and a smaller number of whites have varying degrees of disaccharide intolerance and cannot drink milk without experiencing gastrointestinal upset.[14]

Obesity is a substantial problem in adolescence not only from a strict nutritional viewpoint but also because of the associated body image problems which affect an adolescent's social adjustment and self-esteem. Although some chubby younger teenagers develop more normal height/weight ratios as they complete somatic growth and development, many of today's fat adolescents become tomorrow's fat adults. The increased health risks associated with obesity are well known. Being underweight, which does not carry as high a health risk* as obesity, is also a problem. Interviews of youth, ages 12-15, in Harlem revealed that 31 percent of boys were concerned about being underweight, while 22 percent felt they were obese. On the other hand, girls evinced more concern about being overweight (34 percent) than underweight (24 percent). On physical examination by standard criteria 27 percent of boys were judged underweight and 11 percent obese, whereas 15 percent of girls were felt to be underweight and 16 percent overweight.[1] Other studies have concluded that obesity is a problem for about 15 percent of American adolescents while a smaller percentage (5-10 percent) are underweight.[7,12]

Of particular importance is the observation from several sources, corroborated by Job Corps experience, that obese individuals have much greater difficulty obtaining satisfactory employment than their thinner peers of equivalent education and training.[15]

Different nutritionists have different advice concerning what constitutes satisfactory nutritional intake for adolescents. Caloric needs depend on many factors, including size, genetic constitution, basal metabolic rate, and physical activity. Adolescents need more calories while in their growth spurt

* Except in extreme cases such as anorexia nervosa.

than when physical development is complete. Maximum growth most likely occurs just before puberty and then declines rapidly.[9]

A study on Iowa school children in the early 1950's found that girls reached their peak intake at about 12 years, whereas boys reached it at about age 16.[2] The 1965 Household Food Consumption Survey of the Department of Agriculture found the average 24-hour caloric intake of boys highest during the age period 15-19, at 3000 calories, while girls had the highest caloric intake, an average of 2150 calories, in the age range 12-14.[3] An average recommended caloric intake for adolescent girls is 2000-2400 calories/day, while for their male cohorts it is 2600-3400 calories daily. An example of one basic diet recommended for adolescents is as follows:

2400 Calorie Diet[9,15]

Milk - fortified with vitamin D	4 glasses
Egg	1 per day
Meat - 3 oz. serving cooked	2 servings
Meat, cheese, eggs, or 1 oz. serving peanut butter	2 servings
Bread and cereals (preferably whole grain - one small serving of cake, cookies, etc., may substitute for one bread serving)	8 servings
Fruits and Vegetables	4 servings
1 serving must be citrus or tomato	
1 serving must be green or yellow vegetable	
Fat - fortified with vitamin A, if oleo	6 teaspoons

It is suggested this be divided into three meals a day with a between-meal snack of good nutrient quality. For obese adolescents this diet can be modified to reduce the calories to 1500 - 1800 by eliminating the fats, reducing the bread servings to four, giving skim milk, and substituting salad dressings without oil. Some health professionals with experience working with obese adolescents feel that to effectively reduce they should be on a 1000 calories/day diet. It is well established that the success rate for weight reduction is very small and psychosocial factors must be addressed if there is to be any hope of success. The use of amphetamines as an adjunct to reducing diets has not been shown to contribute to long term success, has been associated with frequent undesirable side effects, and may contribute to the reliance of adolescents (and future adults) on "pills" as a remedy for any health problem. Therefore, amphetamines should never be used for weight reduction in adolescents.

An adolescent group of special concern nutritionally consists of those that are pregnant and/or mothers. Menarche is coming at an increasingly early age. Teenage girls in this country reach their potential childbearing years usually between ages 12 and 15.[20] Approximately 40 percent of all brides are teenagers and over 35 percent of all babies are born to teenage mothers. Seventeen percent of first-born children have mothers under the age of 16.[6,12] Few adolescents have adequate understanding of their usual nutritional needs or the increased needs associated with pregnancy and nursing.

Adolescent pregnancy is associated with a greatly increased risk of many complications. Poor adolescents who become pregnant are at even higher risk than their peers from average or high income families. In addition to the risk of maternal complications there is the risk to the fetus. Adolescent mothers have a higher rate of stillbirths, babies that die during the neonatal period, and low birth weight babies.[11,21] Newborns with low birth weights relative to their gestational age show a greatly increased rate of permanent neurological impairment.[18,21]

The causes of babies coming into the world with low birth weights for their gestational ages have not been fully clarified. The nutritional status of the mother, however, is clearly important. Mothers from economically disadvantaged backgrounds who have had suboptimal nutrition during their childhood appear to be particularly at risk for having low birth weight babies.[8] There is as yet no evidence that providing adequate nutrition to a mother during gestation alone can lower this risk if she has a history of poor nutrition. This underscores the importance of providing proper nutrition throughout childhood and adolescence.

Unfortunately some pregnant adolescents, concerned about their body image and weight, attempt dieting during pregnancy. Since both their own growth and that of the fetus require an adequate diet, particularly with respect to calories, protein, and calcium, and since caloric deprivation is poorly tolerated, dieting imperils both maternal and fetal health.[11] Therefore, it has been recommended that even for the obese young adolescent a modest weight gain be permitted during pregnancy.

Biochemical evaluations of pregnant adolescents have shown a significant tendency towards iron deficiency anemia and folic acid deficiency. Such

biochemical abnormalities have not been proven to correlate with poor pregnancy outcomes except when very severe. Inadequate protein intake, on the other hand, has been linked with increased fetal wastage, and inadequate maternal calcium intake leads to calcium depletion from maternal stores to supply the developing fetus.[11]

Nutritional patterns are frequently important in determining an adolescent's risk of acquiring dental disease. The presence of dental caries is the most frequent health condition found in most health status evaluations of adolescents.[1,19] This is especially true for poor adolescents who usually have not had regular access to dental care or education concerning proper preventive dental techniques. A health assessment of young adolescents in Harlem revealed that 867 had at least one dental condition requiring a referral. A dental evaluation of entering Job Corpsmembers found that the average enrollee had 6.65 decayed teeth, 2.27 missing teeth, and 2.18 filled teeth.[19] An Army study revealed that every 100 inductees had an average of 600 fillings, 112 extractions, 40 bridges, 21 crowns, 18 partial dentures, and 1 full denture.[17]

The impact of nutritional habits on dental disease is well established. High carbohydrate foods are broken down to sucrose and acted on by endogenous oral bacteria. This leads to caries but also contributes to periodontal disease. The increasing reliance of the adolescent on snack foods and soft drinks greatly enhances his chances of having dental disease. In the health survey of Harlem youth, half of the girls and more than a third of the boys reported that they ate more in snacks than in meals. Fluoridated drinking water has been proven effective in reducing dental caries and is to be strongly recommended as an adjunct to routine dental prophylaxis of brushing and flossing.

Unfortunately, most teenagers have insufficient knowledge concerning their nutritional needs. They have not been taught by their schools. In some cases their parents' nutritional knowledge is also inadequate. Nutrition has been accorded a low priority in the ranking of general concerns. Even if parents are knowledgeable and set good examples, adolescents are not inclined to accept their guidance about what they should eat. The main nutritional educator is the media, both print and broadcast. Companies whose food products are pushed through advertising are dedicated to making money, not providing adequate nutrition or fostering healthful eating habits among young adults.

Nutritional education for adolescents must be aimed at providing common sense basic information about how the body grows and works, what it needs to accomplish these tasks, and how an individual can help himself develop maximally and avoid some health conditions by paying attention to nutritional habits. In order to be effective, nutritional education must be relevant to the adolescent; it must address his current concerns and bring to light new areas of interest. This requires full comprehension of the student's cultural background, family, dietary habits, financial resources, and attitudes towards nutrition.[5] An adolescent is very concerned about his body, how it looks, how it grows, and what factors may interfere with its integrity. These concerns should be addressed in teaching how foods, vitamins, and minerals contribute to growth, normal functioning, and achievement of the individual's goals, e.g., pretty teeth, good figure.[4,10] Nutritional education should include a discussion of which individuals are at highest risk to suffer ill effects from inadequate nutrition — such as growing children and adolescents before complete growth is achieved, pregnant women, nursing mothers, and those who are ill or recovering from illness.

In order to be effective the teacher must not let his own prejudices, like the importance of eating three meals a day, determine what is best for or most acceptable to the adolescent. Snacking cannot be considered a fad to be disdained, but a frequent eating habit. It is a fact that many people of various ages do not eat a full breakfast, if any at all. Frozen and prepared foods occupy a large and secure segment of the food market. To not take full account of these facts in teaching about nutrition is to provide irrelevant information which has little chance of being incorporated into an adolescent's decision-making process. It is important to point out that a meal composed of a hamburger with lettuce and tomato, french fries, and a milk shake has reasonable nutritional value, and contains most essential nutrients. Likewise, tacos include most of the basic ingredients of a well balanced meal. Pointing out to a youth that major components of what he is already eating are nutritious and healthy can be a good prelude to analyzing dietary habits that may be less beneficial. The strong effect of peer behavior in determining adolescent nutritional habits is well known; an educational approach which can mobilize peer pressure has a significant possibility of success.[7,13] This approach has also been effectively utilized in a few settings to help obese adolescents reduce to more desirable weights.

Since most adolescents are or will soon be parents it is imperative that they develop nutritional attitudes and habits that they can instill in their children. There is good evidence that the food a mother provides to her children is greatly determined by what she received during her growing period.[5,12,22] Of particular concern are the television commercials for sugary products that help foster bad eating habits, and strong parental influence is required to counteract this force.

REFERENCES

1. Brunswick, A. and Josephson, E. "Adolescent Health in Harlem." Supplement to American Journal of Public Health 28 and 43-47 (Oct.) 1972.

2. Eppright, E. S., Sidwell, V. D , and Swanson, P. P. "Nutritive Value of the Diets of Iowa School Children." Journal of Nutrition vol. 54: 371-388 (Nov.) 1954.

3. "Food Intake and Nutritive Value of Diets of Men, Women, and Children in the United States, Spring 1965." Publication no. 62-18. Washington, D. C.: Consumer and Food Economics Research Division, U. S. Department of Agriculture, March 1969.

4. Gallagher, J. R. "Physiologic and Psychologic Characteristics." Clinical Pediatrics vol. 2: 151-160 (April) 1963.

5. Grifft, H. H., Washbon, M.B., and Harrison, G.G. Nutrition, Behavior and Change. Englewood Cliffs, N.J.: Prentice-Hall, 1972.

6. Hepner, R. and Maiden, N. C. "Growth Rate, Nutrient Intake and 'Mothering' as Determinants of Malnutrition in Disadvantaged Children." Nutrition Reviews vol. 29, no. 10: 219-223 (Oct.) 1971.

7. "Highlights of the Ten State Nutrition Survey; 1968-1970." Publication no. HSM 72-8134. Washington, D. C.: U. S. DHEW.

8. Hunscher, H. A. and Tompkins, W. T. "The Influence of Maternal Nutrition on the Immediate and Long Term Outcome of Pregnancy." Clinical Obstetrics and Gynecology vol. 13, no. 1: 130-143 (March) 1970.

9. Johnston, J. A. "Metabolic and Nutritional Considerations in Adolescence." Pediatric Clinics of North America vol. 7: 33-42 (Feb.) 1960.

10. Leverton, Ruth. "The Paradox of Teenage Nutrition." Journal of the American Dietetic Association vol. 53, no. 1: 13-16 (July) 1968.

11. "Maternal Nutrition and the Course of Pregnancy." Summary Report, Committee on Maternal Nutrition/Food and Nutrition Board, National Research Council, National Academy of Sciences. Reprinted by U. S. DHEW, 1970.

12. McGanity, M.D. "Obstetric and Nutritional Problems" in Proceedings from Western Hemisphere Congress on Nutrition 1965.

13. McKay, H. D. "Social Influence on Adolescent Behavior." Journal of the American Medical Association vol. 182: 643-649 (Oct.-Dec.) 1962.

14. Pearson, P. B. "Nutrition Perspectives in the 70's." Nutrition Reviews vol. 30, no. 2: 31-34 (Feb.) 1972.

15. Personal communications.

16. Read, M. S. "Teenage Nutrition: Foundations for the Future." Forecast: Teacher Education of Co-Ed 40 (Feb.) 1965.

17. Scherf, H. W. "Prevention of Dental Caries." Journal of the Association for the Advancement of Science (Oct.) 1971.

18. Shank, Robert. "A Chink in Our Armor." Nutrition Today vol. 5, no. 2: 2-11 (summer) 1970.

19. Shapiro, Stewart, Moore, James, and Schachtel, Paula. "Dental Status of Enrollees at Charleston Job Corps Center." Unpublished, 1971.

20. Tanner, J. M. "The Trend Towards Earlier Physical Maturation" in Biological Aspects of Social Problems, Eugenics Society Symposia. J. E. Meade and A. S. Parkes, eds., vol. 1, Edinburgh: Oliver and Boyd, 1965.

21. Wallace, H. "Factors Associated with Perinatal Mortality and Morbidity." Clinical Obstetrics and Gynecology vol. 13, no. 1: 13-43 (March) 1970.

22. Whitten, Charles. "TLC and the Hungry Child." Nurtition Today vol. 7: 10-14 (Jan.) 1972.

OBESITY IN ADOLESCENTS

By

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At the Los Angeles Job Corps center, a group of us — a social worker, a psychologist, a nutritionist, a dietician, two nurses, and myself — have been working as a team, taking a new, multidisciplinary look at obesity. I would like to share some of our perceptions of this problem and information on the program which has recently grown out of these perceptions.

Obese individuals tend to be difficult and discouraging patients. Stunkard and Reader, commenting in the New York State Journal of Medicine in 1958, quipped that "...most obese persons will not stay in treatment for obesity. Of those who stay in treatment, most will not lose weight and of those who do lose weight, most will regain it."[5] It's probably this defeatist attitude that discourages the physician before the patient really admits defeat himself. During the initial assessment for obesity, it's always wise to assess what the patient has tried in the past in the way of weight reduction. Before obese individuals seek help from physicians or others they have generally made many attempts to help themselves. By the very fact that they come to your office for help with weight problems, it can be assumed that these attempts have all ended in failure. Many of these patients will have practiced in the past what can be referred to as the "rhythm method of girth control" — going on and off various programs. Previous defeats, on the part of both the physician and the patient, need not be negative factors in dealing with the problem of obesity. Often, they can promote a continuing, helping relationship.

There is no doubt that obesity represents a significant problem in the Job Corps population. The records at the Los Angeles center indicate that roughly 20 to 30 percent of each intake group of young women coming into Job Corps have problems with obesity.

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It is important to differentiate between the meanings of obese and overweight. Without getting into lengthy definitions, one may define obesity as an excess accumulation of body fat or fatty tissue. This is best determined clinically through the use of triceps calipers. The overweight individual is one who is overweight according to the Metropolitan Life Insurance Actuarial Charts. Overweight, then, is not synonymous with obese. All obese individuals are overweight, but not all overweight individuals are obese.

In considering the problem of obesity within the Job Corps, we perceive it as more than an actuarial risk factor associated with conditions such as atherosclerosis, hypertension, diabetes mellitus, and osteoarthritis of the lower limbs. We see it as affecting the individual's ability to make a free vocational choice. At the Job Corps in Los Angeles, and I would imagine elsewhere, there are certain restrictions on which vocations obese corpswomen may pursue. As an example, the training program for licensed vocational nurses, due to the nature of the training and eventual job tasks, avoids enrollment of an individual falling within the obese category. The problem of obesity, then, interferes not only with the ability of corpsmembers to function during the training period, but also with their eventual employability.

Beyond training and employment, however, obesity interferes with the corpsmember's social integration. Failure to be socially integrated into the peer group structure, in turn, often leads to diversionary eating patterns, thus further promoting obesity. Any changes that are to be effected within the individual have to be framed within the total Job Corps setting, within its total philosophy and daily routine. The Job Corps experience itself provides a natural milieu for obese corpsmembers to undertake significant weight loss, since entering and staying in Job Corps demands some commitment to making changes in their lives. Enhancing body image can be an important part of this change process. Any corpsmember who has not made a commitment to change is a poor candidate for a weight loss program.

What, then, do we know about the predeterminants or causes of obesity? There is apparently no single cause of obesity. In situations involving many factors, one or two usually stand out. One of these is the genetic factor. Animal husbandry studies strongly support the genetic factor. Animals have been interbred to produce offspring with higher total body fat and, thus,

increased market value. There is also a special strain of laboratory mice in which the tendency toward obesity can be genetically transmitted. Anyone who has observed large numbers of teenagers recognizes that there are some girls who have a normal body build from the waist up but are obese from the waist down. Examination of their family members often reveals a similar disproportionate distribution of body fat, which is sometimes incorrectly referred to as lipodystrophic obesity.

Examination of obese individuals and their parents as a group reveals that two-thirds of obese people have at least one obese parent. While these observations may be attributed to environmental influence, the study of twins strongly supports a genetic contributor in obesity. Clearly, it is a factor which, at the present state of our knowledge of genetic manipulation, cannot be influenced by the Job Corps experience.

Another theory concerning the causes of obesity suggests that it is primarily biochemically determined and that obese individuals are just biochemically different. One of the suggested biochemical differences has been the purported absence of an inhibitor for the enzyme glycerokinase in the fatty tissue of obese individuals. The presence of active glycerokinase thus allows the resynthesis of triglycerides in adipose tissue without the need of extracellular activated glucose. This has been definitely documented in certain strains of obese mice, but never truly documented in humans. In further support of this thesis, there are the metabolic-endocrine syndromes which produce obesity such as the Laurence-Moon-Biedl and Fröhlich's syndromes, hypothalamic tumors with increased intracranial pressure, ovarian dysgenesis, and a number of others. There has also been some suggestion that certain people who are obese get fat because they seem to have more efficient mechanisms for digestion, absorption, and utilization of their food. It is believed that such individuals would thus gain weight on a caloric intake that would merely maintain constant weight in other people.

Emotional or psychological causes of obesity contribute another area of hypothesis. Overeating, whether covert or overt, is viewed as a coping mechanism in response to stress. This coping mechanism may be a way of dealing with boredom, rebellion, or depression, or it may be a way of making

oneself socially unacceptable. In such ways, one doesn't have to deal with the challenges of adolescence, the acceptance of sexuality, integration into the peer group, etc. This is one area in which some therapeutic alternatives can be explored and exploited in helping corpsmembers cope with their problems of adjustment and obesity.

There has also been some suggestion that cultural, social, and family factors strongly affect the tendency toward the development of obesity. Within certain family groups, a "normal" body build is one which is overweight or slightly obese. It is not uncommon for a mother to bring an apparently normal looking child to the doctor with the complaint that he's too thin and ask what should be done to fatten him up. In these cases, there has been a family decision as to what is normal or good, and by comparison with the "norms" this child is "thin." Also, certain cultural or subcultural groups have high carbohydrate content built into their diets. Such diets involve significant caloric intake before satiation. This eating pattern generally leads to the development of obesity. Some families eat frequent heavy meals of high caloric value with a tendency toward the heaviest intake near the end of the day. Teleologically, this is a time when calories are needed least, i.e., when the individual rests for the night. Calories not used while sleeping are then stored as fat, and during the morning hours the energy required for immediate activity is drawn from the readily available glucose, lowering blood sugar and thus triggering the hunger mechanism. Such cultural factors could be influenced by an obesity program within the Job Corps that removes the individual from his accustomed family, cultural, and social settings, and provides a supportive milieu in which the young adult can decide for himself what dietary habits and body image are desirable.

Is there a relationship between activity and obesity? Mayer and his group have shown that obese people have decreased activity.[2,4] He has also shown, surprisingly enough, that they have lower caloric intake than the norm for people the same age. Cause and effect is really in question here; did their decreased activity lead to obesity or their obesity lead to decreased activity?

It has become apparent that obese people develop ways of doing things that are energy-conserving. They will often find a way to do the same thing you and I do but will utilize only half the energy we would. This, then, is another area in which a Job Corps obesity program can help the corpsmembers. They can be encouraged to utilize more energy through increased activity. This increase must be in the context of daily Job Corps activity instead of through artificially structured programs of physical education. In this way it is more likely to be "internalized" by the individual.

With the preceding possible etiological factors in obesity in mind, the following are the types of intervention that have been developed to cope with this problem and can be employed in the Job Corps.

First, we are firmly against the use of chemical intervention, i.e., thyroid extract, diuretics, or anorectics such as the amphetamines. We feel the concentrated area of effort should be the decreasing of caloric intake. Our standard minimum caloric intake is 1,000 calories; below that minimum level, stunting of growth may occur in the actively growing adolescent. How to encourage corpsmembers to freely choose a low-calorie diet can pose a problem.

In our program at the Los Angeles Job Corps center we had to devise a scheme by which this diet could be selected preferentially over a normal diet. Corpsmember "research" participation was the key. Originally, our dining room personnel reported that the people on the minimum diet program would take their diet food and then, if the regular menu looked good, return to the line and take the regular food. We overcame this problem by getting each individual on the minimum diet program to record her daily intake and the timing of this intake, and comment on her mood at the time. This technique has been applied to outpatient populations as well, where it has been found to be quite helpful in efforts to correlate the urge to eat with personal feelings and social situations at the time. The usual response on the part of the individuals who have been asked to do this is "I can't do that," or "It's very difficult," or "It's impossible." They give all kinds of reasons why they can't do it. But after encouragement, they will come around and indicate that it's not so difficult and develop some insight into their eating habits. A major accomplishment is to get the corpsmember to eat only when she is hungry!

Although we encourage physical activity, our program does not resort to sterile types of exercises. Participants in our program have the freedom to use the gym to do some skipping, which is often a group activity done to rock music, almost like dancing. There is a high caloric output in this activity. We also teach corpsmembers small ways in which they can increase their caloric output daily; instead of sitting down to put their shoes on, they are urged to stand up and lift their legs to put their shoes on. This triples caloric utilization. Walking up two stairs at a time doubles the individual's caloric utilization. Walking down two flights and up one flight instead of always waiting for the elevator utilizes calories that would not normally have been used. Increases in the expenditure of energy can be achieved through such changes in a corpsmember's daily routine.

One of the biggest problems in dealing with the obese individual has been the need for initial and continuing motivation. Our program is run largely by a nutritionist and the nursing staff. There are three weekly meetings when all the participants in the program come down and meet with the nurse. In this group setting, peer group interaction rather than authority influence has been the key factor in achieving any effective results that we have seen. Individual motivation should often be supported by counseling and vocational staff who can help corpsmembers understand the effect of obesity on vocational training options, job placement, etc. A girl who wants to do clerical work is not much good in a clerical office if she weighs 350 pounds. She may not even be able to fit between the filing cabinets. The mere need to lose weight often provides the initial motivation to get the individual into the weight reduction program. Progress is essential to keep this motivation going. Daily weighings and measurements by the girls themselves help. The weights and measurements are plotted on a chart that predicts ideal weight loss.[1] This chart is calculated when a corpswoman is accepted into the program through a mathematical calculation that assumes 1 pound of body fat to equal 3500 calories, and determines roughly both anticipated increased energy output and decreased energy input. The graph thus developed shows where a corpswoman should be on a certain date. The corpsmember actually weighs herself and plots her own chart. This

provides essential short-range goals along the road to the longer term objective. The achievement of these short term goals enhances self-esteem and encourages similar improvement among other group members.

Lastly, we are trying to develop a model to provide some kind of reward for accomplishment. Weight loss alone is probably not an adequate reward. Some other kind of relevant reward must be developed, such as a monetary prize or some other kind of recognition for accomplishments.

With the team approach, we hope to achieve at least a 50 percent success rate over 3 months. This estimate is based on work that we've undertaken on a pilot basis within the hospital setting. Determination of more permanent success is essential and will require intermittent followup, which is unfortunately difficult in Job Corps because of the limited time of enrollment.

REFERENCES

1. Bortz, W. M. "Predictability of Weight Loss." Journal of the American Medical Association vol. 204, no. 2: 101-105 (April 8) 1968.

2. Bulken, B., Reed, R., and Mayer, J. "Physical Activity of Obese and Non-obese Adolescent Girls Appraised by Motion Picture Sampling." American Journal of Clinical Nutrition vol. 14: 211-223 (April) 1964.

3. Mayer, J. "Obesity." Annual Review of Medicine vol. 14: 111-132, 1963.

4. Mayer, J., Roy, P., Mitra, K. P. "Relation between Caloric Intake, Body Weight and Physical Work: Studies in an Industrial Male Population in West Bengal." American Journal of Clinical Nutrition vol. 4, no. 2: 169-175 (March-April) 1956.

5. Stunkard, A. J. and Reader, J. "The Management of Obesity." New York State Journal of Medicine vol. 58: 79-87 (Jan. 1) 1958.

CLINICAL AND LABORATORY MANIFESTATIONS OF SICKLE CELL DISEASE AND SICKLE CELL TRAIT

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Although a great deal of basic research has been conducted on sickle cell anemia, yielding extensive information about its genetics and biochemistry, little of what has been learned is directly applicable to the care of the sickle cell anemia patient.

The basic defect is a structural change in the oxygen-carrying pigment, hemoglobin, contained in the red blood cell. Adult hemoglobin consists of two polypeptide chains called alpha and beta. A hemoglobin molecule consists of a pair of each chain arranged in the form of a triangular pyramid with four heme porphyrin groups attached. In sickle hemoglobin there is a slight change in the beta chains - a substitution in 1 of 146 amino acids. The amino acid, valine, replacing glutamic acid at that site results in radical changes in the properties of the hemoglobin molecule, even though valine is a naturally occurring amino acid normally present elsewhere in both alpha and beta chains.

The effects of this structural change are easily demonstrated by observation of a solution of pure hemoglobin (where the red blood cell walls have been removed). If one removes oxygen, the solution assumes an unusual gel-like consistency due to the formation of small crystals.[5]

Sickle hemoglobin confers two adverse properties on the red cells. Both are related to the formation of crystals that result from deoxygenation. First, whereas the normal red blood cell is very flexible and resilient, the sickled cell is rigid. These cells form bizarre shapes, on occasion resulting in the clogging of blood vessels. Tissues supplied by these blood vessels become damaged, sometimes irreparably. Secondly, the sickled cell is

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fragile his results in a significantly shortened red cell life span. Fortunately, in sickle cell anemia, production and destruction of red cells balance out at a level high enough to sustain life, but patients with sickle cell anemia are always anemic.

Clinically, sickle cell anemia produces a variety of signs and symptoms (Table 1). An unexplained phenomenon is the marked variability in manifestations in different individuals and even in the same person at different times. While sickle cell anemia usually becomes evident in early childhood, there are reports of individuals not found to have the disease until middle age and even then not showing many problems that can be associated with the disease.[21] While most people with sickle cell anemia develop serious complications at some time, there are some who have very few or none of these.

Table 1

SOME SIGNS AND SYMPTOMS ASSOCIATED WITH SICKLE CELL ANEMIA

Acute	Chronic
Primary	Primary (sickling)
Thrombotic crises	Hyposthenuria
Hemolytic crises	Habitus, skull bossing, etc.
Hypoplastic crises	Leg ulcers
Splenic crises	Icterus
Secondary	Cholelithiasis
Infection	Asplenia
Encapsulated organisms	Secondary (anemia)
Salmonella osteomyelitis	Cardiomegaly
Thrombosis	Murmurs
Lung	High output failure
Brain	Easy fatigue or lack of stamina
Eye	Delayed puberty

The term "crisis" is used to designate a sudden event directly related to sickle cell anemia. Some clinicians feel it is helpful to try to distinguish four different types of crises, i.e., thrombotic, hemolytic, hypoplastic, and splenic (Table 2), although these are all directly related to the presence of the sickle hemoglobin.

Table 2

DIFFERENTIATION OF CRISES

Type	Hgb	Retic	Bilirubin	Symptom	Therapy
Thrombotic (painful)	—	—	—	pain	analgesia
Hemolytic	↓	↑	↑	jaundice	transfusion
Hypoplastic	↓	↓	—	fatigue, dyspnea	transfusion
Splenic	↓	—	—	shock, large spleen	transfusion

↑ = increased, ↓ = decreased, and — = unchanged for the usual low hemoglobin, markedly increased reticulocyte and often slightly increased bilirubin.

The most common, dramatic, and best known is the thrombotic or painful variety. This occurs unpredictably and suddenly with pain in some part of the body. It varies in severity from mild to severe enough to require hospitalization. It may last from minutes to weeks. Although these crises are probably related to the plugging of blood vessels, proof is difficult because there is no way to see exactly what is going on inside the blood vessels. Occasionally, a vital structure is involved with dire consequences. For example, a cerebral artery may be affected, producing a stroke, or a retinal artery involved producing visual impairment.[17]

The hemolytic crisis is less common and occurs when the balance of hemolysis vs. erythropoiesis is tipped in favor of hemolysis. Although the precipitating factors are not clear, the patient with this problem usually

presents with symptoms of increased jaundice and increasingly severe anemia. Liver disease can often be excluded with enzyme studies, but in the presence of a mild hepatic dysfunction the diagnosis is difficult. The only known therapy is transfusion with normal red cells.

Fortunately, hypoplastic crises are rare. They are caused by two different mechanisms. One cause is relative folate deficiency.[16] Because folate is necessary to the production of red cells and there is increased red cell production in people with sickle cell anemia, more folate than normal is required. A further stress on the sickle cell anemia patient, such as poor diet or pregnancy, may lead to less folate being available than is needed for red cell production. As a result the hemoglobin level falls. In this case, examination of the bone marrow will suggest insufficient folate and the serum folate will be low. The other cause of hypoplastic crisis is acute illness, which often causes the body to slow down red blood cell production.[22] The normal person can handle this decrease very well, but the chronic severely anemic patient with markedly shortened red cell life span will have a significant drop in hemoglobin values. Either type of hypoplastic crisis can be fatal. Onset may be so subtle that the diagnosis is not suspected. There may be sudden onset of heart failure, dyspnea, profound weakness, or shock. There will ordinarily be reduced reticulocyte count, hemoglobin, and nucleated red cells. Transfusion is mandatory.

Some experts delineate a fourth type of crisis found in children with sickle cell anemia and called splenic crisis.[19] In this type of crisis, for unknown reasons, the spleen suddenly sequesters much of the child's blood and as a result the child can go into shock. This is thought to occur early in childhood because many microinfarctions of the spleen usually lead to atrophy of this organ by late childhood. Treatment is transfusion.

Infection appears to be a common factor predisposing to sickle cell crisis. There has been much debate on the role of infection in sickle cell anemia.[1] Although many experts feel that individuals with sickle cell anemia

do not have an increase in all kinds of infection, several researchers have recently shown that absence of a functioning spleen from early life (as in patients with sickle cell anemia) predisposes to infection[13] with bacteria having a polysaccharide capsule, such as D pneumoniae.[11,15] Also, Salmonella osteomyelitis has been clearly shown to occur more frequently in people with this disease than in the general population,[7] although the reasons for susceptibility to this particular organism are not known.

Individuals with sickle cell anemia show a definite increase in blood clots in the lung. It is difficult to decide clinically whether these clots come from other parts of the body or arise in the lung itself due to sickling. Bony infarcts are common and are especially troublesome when they occur at the head of the femur or humerus, producing the syndrome of aseptic necrosis.

Sickling in various parts of the body causes a number of chronic problems. For example, sickling in the renal medulla leads to decreased ability to concentrate urine. Early in childhood this condition is reversible with transfusion, but by early adolescence it is usually permanent.[12] Sickling in the veins of the ankle and lower leg frequently lead to ulcerations which are extremely resistant to therapy. Sickling can also interfere with normal growth and development, causing many patients with this problem to be either short and slender to tall and thin with a short trunk and very long thin limbs.[23] "Tower skull" or bossing of the skull may occur and is said to be related to hematopoiesis in the skull. The chronic hemolytic anemia may eventually produce cholelithiasis[9] with characteristic bilirubinate stones.

Persistent anemia alone may be responsible for several problems observed in sickle cell anemia patients. Retarded growth, delayed puberty, lack of stamina, and high cardiac output in patients with this condition are seen in other types of chronic anemia. Prolonged anemia may be the cause of the high output congestive heart failure often seen, but other factors are probably also involved in pathogenesis.

Sickle cell anemia does not affect intelligence except in rare instances. However, because of the chronic disabling nature of the disease frequent absences from school are the rule and an affected child may fall hopelessly behind. Many

affected children drop out, some from sheer frustration. There is a definite need for some program designed for the specific needs of these children.

The patient with sickle cell anemia frequently has difficulty making a psychosocial adjustment of his disease. Consider for a moment the problems of a sensitive young person who has an incurable disease that may produce severe pain and possible death at any time. In addition, there are the physical stigmata such as yellow eyes, delayed puberty, leg ulcers, small stature, and skull bossing, that many are ashamed of or that produce cruel jokes or nicknames. Helping the individual and his family develop techniques for coping with these aspects is a responsibility of health personnel.

The relationship between parents and affected children is often plagued by guilt and misinformation. Marriages have broken up with each parent blaming the other for transmitting sickle cell anemia and neither understanding that both parents contribute an S gene to an affected offspring. The manner of dealing with this guilt may vary but health care professionals can offer support and guidance and, most of all, factual information.

Recently, with the widespread interest in sickle cell anemia, the news media has been printing dire prophesies of early death and horrible life. This has had greatest impact on people with milder disease and on parents of children with the disorder. When the newspaper reports estimate that 50 percent of those with sickle cell anemia die by age 20 and 90 percent by age 40, a person with sickle cell anemia who is 42 may become alarmed and question his potential for survival despite the fact that the disease has run a relatively benign course in him. It must be emphasized that statistical concepts are useful for demographers and statisticians but are much less helpful in dealing with the individual patient. In addition, there is still insufficient information to say with certainty what the lifespan of any individual patient with sickle cell anemia will be.

The question of employment is important to young people with sickle cell anemia. Guidance is necessary to help them select occupations that do not require physical stamina and if possible allow for frequent absences. Some vocational areas that may be considered are television repair, accounting,

clerical and secretarial work, and electronic assembly. Those with milder variants of sickle cell disease will often be able to do more strenuous types of work.

It is, nonetheless, a fact that many employers are reluctant to hire people with chronic illnesses such as sickle cell anemia. Many patients do not inform their employers of their illness and are judged irresponsible if they have frequent absences. A few, however, are able to maintain good attendance as well as performance records.

Unfortunately, the history of treatment for sickle cell anemia is, except for supportive measures, a history of failures. Among the therapies that have been unsuccessfully tried in attempts to inhibit or reverse the sickling process and its consequences are chlorpromazine, carbonic anhydrase inhibitors, nitrites, carbon monoxide, steroids, anticoagulants, alkalizers such as sodium citrate and bicarbonate, vasodilators, iron, cobalt, and hyperbaric oxygen.

Currently investigations are underway in many institutions to find other methods of therapy. The major drugs currently being investigated are urea, potassium cyanate, and carbamyl phosphate.

Supportive measures consist of appropriate analgesia for pain, fluids for dehydration, transfusions for anemia, digitalis for heart failure, and antibiotics for infections.

At the present time blood transfusion is the major item of therapy offered for nonthrombotic crises and for general support. There are, however, several serious problems that can arise with repeated or chronic transfusions that overshadow the obvious benefits. One problem is the possibility of contracting hepatitis. Another is the potential for iron overload syndromes such as hemochromatosis or hemosiderosis. Frequent transfusions also increase the likelihood of a transfusion reaction and reduce the number of potential donors that can provide compatible blood. Since transfusions are expensive, economics is also a factor to be considered.

While most people have heard about sickle cell anemia, few are aware of sickle cell trait and the differences between sickle cell trait and

sickle cell anemia. In sickle cell trait more than half of the hemoglobin in each cell is normal and this protects the cell from sickling under normal physiological circumstances. The person with sickle cell trait, thus, normally has no crises and no anemia caused by the increased breakdown of cells with predominantly sickle hemoglobin. Since people with sickle cell trait generally have no problems related to it, they are unaware that they have it unless they are tested for it.

A very small percentage of persons with sickle cell trait have, at some time in their lives, some hematuria related to this condition.[20] The hematuria is usually self-limiting and of short duration, but may on occasion be prolonged and severe. Renal papillary necrosis may occur in people with sickle cell trait, but only rarely. Many individuals with sickle cell trait eventually have a reduced ability to concentrate urine, though this does not usually cause any problems clinically.

Some people with sickle cell trait have been advised against a career in flying. This advice is based on the observation that under conditions of low oxygenation, such as high altitudes without proper supplemental oxygen, thrombotic crises may occur in such individuals.[6,3] Loss of normal oxygen pressure is very unusual in commercial airliners, and all airliners have supplemental oxygen on board should a drop in oxygen pressure occur. One must therefore question this advice. Recently there have been articles purporting to show connections between sickle cell trait and (1) sudden death following exercise,[8] (2) sudden death in patients with diabetes,[10] and (3) postoperative complications following administration of general anesthesia. However, convincing evidence of a contributing etiological role of sickle cell trait in these situations has been lacking.

In view of the large number of people with sickle cell trait and the paucity of evidence for related significant morbidity it is preferable to consider it a benign condition detectable with special tests. Therefore, it should not be considered as a disease.

Sickle cell trait combined with other hemoglobinopathies or thalassemia may be severe but is beyond the scope of this paper. Hemoglobin C occurs in

2 percent of the U. S. black population, and in combination with sickle cell trait may produce significant illness. Beta thalassemia and hemoglobin D also occur in the black population, but to a lesser degree.[18] They may also produce significant disease in combination with sickle cell trait.

Mass screening for the sickle cell syndromes has recently become very popular but should not be performed without careful and sensitive counseling of those found to have sickle cell trait as well as other hemoglobinopathies.[2] The major purpose of mass screening efforts should be to provide carriers with sufficient information to permit informed decision-making with respect to marriage and family planning. It is essential that counseling be nondirective concerning options for reproduction. It is also essential that strict confidentiality be observed in any testing and counseling program.

Young adults, because of their ability to understand the implications of having a changed hemoglobin and their need for this information as they enter their reproductive period, should be the priority group in any mass screening program. Two basic types of laboratory tests are available for use in these programs. Solubility tests have been devised based on the fact that sickled hemoglobin is less soluble than normal hemoglobin in various chemicals. Unfortunately the nonsickling hemoglobins such as hemoglobins C and D which interact with hemoglobin S are not detectable. Furthermore, solubility tests do not distinguish between sickle cell trait and sickle cell anemia. Hemoglobin electrophoresis is a preferable test because it will distinguish between sickle cell trait and sickle cell anemia as well as identify nonsickling hemoglobin variants. However, for maximum accuracy in detecting hemoglobin D and some other variants, all samples which migrate like hemoglobin S should also be tested with a solubility test.[4]

In summary, sickle cell anemia is usually a devastating chronic disorder that requires continuing efforts by health care professionals to provide comprehensive health care and by researchers to ascertain more effective means of treatment. Sickle cell trait should be considered a carrier state not a disease; testing and counseling is best performed during adolescence to permit informed individual decision-making about childbearing.

REFERENCES

1. Barret - Connor, E. "Bacterial Infection and Sickle Cell Anemia: An Analysis of 250 Infections in 166 Patients and a Review of the Literature." Medicine vol. 50: 97-112 (March) 1971.

2. "Ethical and Social Issues in Screening for Genetic Disease." Report from Research Group on Ethical, Social, and Legal Issues in Genetic Counseling and Genetic Engineering of the Institute of Society, Ethics, and the Life Sciences, Marc Lappe, program director, James M. Gustafson and Richard Roblin, co-chairmen. New England Journal of Medicine vol. 286, no. 21: 1129-1132 (May 25) 1972.

3. Green, R. L., Huntsman, R. G., and Serjeant, G. R. "The Sickle Cell and Altitude." British Medical Journal vol. 4: 593-595 (Dec.) 1971.

4. Greenberg, M.S., Harvey, H.A., and Morgan, C. "A Simple and Inexpensive Screening Test for Sickle Hemoglobin." New England Journal of Medicine vol. 286, no. 21: 1143-1144 (May 25) 1972.

5. Griggs, R. C. and Harris, J. W. "The Biophysics of the Variants of Sickle-Cell Disease." Archives of Internal Medicine vol. 97: 315-326 (March) 1956.

6. Henderson, A. B. and Thornell, H. E. "Observations on the Effect of Lowered Oxygen Tension on Sicklemia and Sickle Cell Anemia Among Military Flying Personnel." Journal of Laboratory and Clinical Medicine vol. 31: 769-776 (July) 1946.

7. Hook, E. W., Campbell, C. G., Weens, H. S., and Coopen, G. R. "Salmonella Osteomyelitis in Patients With Sickle-Cell Anemia." New England Journal of Medicine vol. 257, no. 9: 403-407 (Aug. 29) 1957.

8. Jones, S. R., Binder, R. A., and Donowho, E. M., Jr. "Sudden Death in Sickle-Cell Trait." New England Journal of Medicine vol. 282, no. 6: 323-325 (Feb. 5) 1970.

9. Jordon, R. A. "Cholelithiasis in Sickle Cell Disease." Gastroenterology vol. 33, no. 6: 952-958 (Dec.) 1957.

10. Jurgensen, J. C., Whitehouse, F. W., Oxely, M. J., and Saeed, S. M. "Intravascular Sickling Associated With Diabetic Ketoacidosis." Diabetes vol. 20, no. 11: 771-773 (Nov.) 1971.

11. Kabins, S. A. and Lerner, C. "Fulminant Pneumococcemia and Sickle Cell Anemia." Journal of the American Medical Association vol. 211, no. 3: 467-471 (Jan. 19) 1970.

12. Keitel, H. G., Thompson, D. and Itano, H.A. "Hyposthenuria in Sickle Cell Anemia: A Reversible Renal Defect." Journal of Clinical Investigation vol. 35: 998-1007 (Sept.) 1956.

13. Lowdon, A. G. R., Stewart, R. H.M., and Walker, W. "Risk of Serious Infection Following Splenectomy." British Medical Journal vol. 1: 446-450 (Feb.) 1966.

14. Mostofi, F. K., Vorder Bruegge, C. F., and Diggs, L.W. "Lesions in Kidneys Removed for Unilateral Hematuria in Sickle-Cell Disease." American Medical Association Archives of Pathology vol. 63, no. 4: 336-351 (April) 1957.

15. Pearson, H. A., Spencer, R. P., and Cornelius, E. A. "Functional Asplenia in Sickle Cell Anemia." New England Journal of Medicine vol. 281, no. 17: 923-926 (Oct. 23) 1969.

16. Pierce, L. E. and Rath, C. E. "Evidence for Folic Acid Deficiency in Genesis of Anemic Sickle Cell Crisis." Blood; The Journal of Hematology vol. 20: 19-32 (July) 1962.

17. Portnoy, B. A. and Herion, J. C. "Neurological Manifestation in Sickle Cell Disease With a Review of the Literature and Emphasis on the Prevalence of Hemiplegia." Annals of Internal Medicine vol. 76: 643-652 (April) 1972.

18. Ranney, H. M. "Clinically Important Variants of Human Hgb." New England Journal of Medicine vol. 282, no. 3: 144-152 (Jan. 15) 1970.

19. Ranney, H. M. "Editorial: Sickle Cell Disease." Blood; The Journal of Hematology vol. 39: 433-439 (March) 1972.

20. Schmidt, J. D. and Flocks, R. H. "Urologic Aspects of Sickle Cell Hemoglobin." Journal of Urology vol. 106: 740-744 (Nov.) 1971.

21. Serjeant, G. R., Richards, R., Barbor, P. R. H., and Milner, P. F. "Relatively Benign Sickle-Cell Anemia in 60 Patients Aged Over 30 in the West Indies." British Medical Journal vol. 3: 86-91 (July) 1968.

22. Singer, K., Motulsky, A. G., and Wile, S. A. "Aplastic Crisis in Sickle Cell Anemia: A Study of its Mechanism and its Relationship to Other Types of Hemolytic Crises." Journal of Laboratory and Clinical Medicine vol. 35: 721-736 (May) 1950.

23. Whitten, C. F. "Growth Status of Children With Sickle-Cell Anemia." American Journal of Diseases of Children vol. 102: 355-364 (Sept.) 1961.

SEXUAL DEVELOPMENT, HEALTH SERVICES, AND ECONOMICALLY DISADVANTAGED YOUNG PEOPLE

By

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Introduction

New approaches to delivery of health services are developing in the sensitive areas of sexual feeling and behavior. These approaches are being utilized in health education programs, reproductive-planning programs, and in the treatment of sexual disorders. Greater attention is being given today to promoting sexual health, as contrasted with an earlier concentration by health care specialists on sexual pathology. This change of emphasis is due in part to looking at sexuality in terms of psychology and physiology and separating the behavioral aspects from the procreational function.

Information is accumulating which links aspects of reproductive and sexual function, gender identity, and sexual behavior to different types of psychosexual development. This information will be presented here, as will the evidence that disadvantaged young people are at high health risk for sexual problems. Suggestions will then be made on how health professionals can develop realistic goals for sex-related health services that reach this population.

Many investigators have reported on the significance of early childhood development in later sexual and ego development (a few of the better known of these reports are: Freud, S., 1905; Freud, A., 1938; Erikson, 1950; Gagnon and Simon, 1972; Kleeman, 1965, 1966, 1971; and Green, 1971). Considerable disagreement exists as to the relative importance of biological, psychodynamic, and social variables in sexual development. While it is clear that early childhood development influences adolescent sexual development, it is unlikely that the childhood experience wholly determines the pattern of later development.

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Sexual and reproductive functions have come under increased scrutiny since the development of effective contraceptive devices. Social acceptance of the separation of sexual pleasure from procreation has become prevalent. The technology of contraception as an emerging field has already had a major impact on sexual behavior and is likely to have more impact with refinement of new methods (such as long-acting contraceptives and chemical contraception for males). Studies of the sexual response in adults have defined its physiological phases, and this response has been observed in individuals from early childhood through later life.[27]

Attitudinal and behavioral studies of the sexuality of youths have generally indicated earlier than average coital experience among economically disadvantaged populations, especially the males. Economically disadvantaged and minority unmarried adolescent females have a high age-specific incidence of single and multiple pregnancy.[18,26] Other observations suggest a high likelihood of homosexual experience for adolescents in penal institutions, and these adolescents are much more likely to be from economically disadvantaged and minority groups.[1,8,12] Similar patterns have been observed in job training centers for young men and women from poor families.[37] Family life and sex education are likely to be missing or not appropriately presented for many young people, especially those who are poor or part of a minority culture.[18,35] Some psychiatric epidemiologic studies, while not focusing on sexual problems per se, have in general indicated that severe emotional disorders are more prevalent among disadvantaged youths.[16]

Sexual Development

The adolescent is in an intermediate position between childhood and adulthood. Developmental studies have directed appropriate attention to gaining historical information from childhood for understanding adolescent emotional development. A central observation, based on many case studies, is that in the nuclear family the son usually models his role on that of his father and competes with his father for his mother's love. The daughter usually models her role on that of her mother and competes with her mother for her father's love. Stages of development called oral, anal, and genital are observed sequentially in the

first 4 years of life.* It is postulated that the success of the child in gaining appropriate parental love and mastering the skills necessary to compete with the parent of the same sex relates to mastering competition with peers of the same sex in adolescence and finding later success in seeking a compatible mate. Subsumed under the general category of psychosexual development are three interrelating processes: biologic sexual maturation, gender identity formation, and sexual behavior.

Biologic sexual maturation in adolescence begins with puberty, which is a process of hormonal increase and increased growth starting with the appearance of secondary sex characteristics and ending with completion of somatic growth.[11] Gender, developing concomitantly, is psychological rather than biological and connotes masculinity or femininity. Milestones on the path of adolescent psychosexual development usually include reproductive capability (generally signaled by ejaculation in the male and menstruation in the female, among other indications), masturbation, association with same sex peers, group ties, dating behavior, coitus, etc.

Gender identity formation is the process of coming to know or believe that one belongs to one sex or the other, that one is a "he" or "she." Many youths today appear to identify with the opposite sex (e.g., long hair for boys, pants for girls), but gender identity is usually relatively stable from early childhood (although experimentation with different roles is common). Ordinarily, by the end of adolescence one has acquired the psychosocial traits (gender identity) that are more or less consistent with one's biologic sex.[38]

Some valuable observations concerning the implications of culture and family on adolescent gender identity formation come from those who work closely

* The oral stage corresponds to infancy when there is dependency on mother for nourishment (nursing), and the gradual differentiation of the self from others. The anal stage corresponds to babyhood with a focus of attention on self-control, particularly around toilet training, and is a time when active resistance to others ("No"), motor coordination, and speech are developing. The genital stage corresponds to young childhood when masturbation or its equivalents are common, and attachments of daughter to father and competition of son with father for mother's affection increase. Certain derivative concerns and behaviors occur in adolescence.

with youths from particular backgrounds. One such person involved with vocational training for poor young mountain women had this to say:

> [Young] women freely engage in sexual encounters with young men because "sex means love." Sex is their substitute for love and affection. [Young] ... women may have intercourse with men whose names they do not know.... Mountain women are taught that their greatest personal worth or value is derived from the fact that they can bear children. They have no other value than this. This culturally reinforced image of women is expressed in the fact that the young women are negative toward birth control measures, abortions, etc. Some [of them] actually appear pleased to find themselves pregnant. Most seem to have goals of "getting married and having lots of babies just as Mama did."[32]

Another observer, commenting on the attitudes of young Mexican-Americans from poverty backgrounds, states:

> The married [young] men stated that "machismo" has less emphasis in the young marriages than in the marriage relationships of older generations. While they maintain that they are the head of the family, they respect their wives and understand something about the needs of women. The young married men, contrary to their religious backgrounds, indicated a great interest in receiving birth control information and in planning wisely for their families.[14]

Such reports, while not necessarily representative, suggest that diversity of sexual attitudes and understanding exists both among young persons of different minority groups and among members within each group. Blacks are the largest minority group in America, comprising approximately 14 percent of the population, and they have received more intensive psychosocial study than any other minority group. It has been noted that black families tend to foster more flexible yet stable gender identity formation, allowing sharing or exchange of paternal and maternal roles as needed. This is important both for the families' adaptation to changes in the job market and for maintenance of the system of informal adoption of children when this need is manifest. While some one-parent families have difficulty functioning, many or most are led by strong self-sufficient individuals (usually women) and are well organized.[15]

However, among all youths, gender identity may take quite rigid (though sometimes temporary) forms. Narrowly defined attitudes regarding sex have been observed in some black youths:

> ...attitudes towards sexual relations are highly competitive (among sex peers) and heavily exploitative (of the opposite sex). Slum Negro boys typically refer to girls including their own girl friends, as "that bitch" or "that whore" when they talk among themselves. Often Negro girls who do engage in sexual relations in response to the strong "lines" of the boys who "rap it to" them do not seem to find any particular gratification in sexual relations, but rather engage in sex as a test and as a symbol of their maturity and their ability to be "with it."[31]

Peer group factors influencing economically disadvantaged white youths have been observed, and these illustrate some values placed on symbols of gender identity in the mid-1960's.

> White lower-class boys are expected to engage in sexual relations whenever they have an opportunity and pride themselves on their ability to have intercourse with many different girls. A reputation of "making out" is valuable currency within the boys' peer groups; there is much bragging and competition (leading to not a little exaggeration) about their sexual conquests.
>
> The girls' position in this group is a much more complex one. White lower-class groups tend to grade girls rather precisely according to their promiscuity, with virgins highly valued and often protected, "one man girls" retaining some respect from those around them (particularly if in the end they marry the boy with whom they have had intercourse), and more promiscuous girls quickly put into the category of the "easy lay." In groups, then, although boys are constantly encouraged to engage in sexual relations, efforts are made tc protect girls from sexual stimulation and even to conceal from them elementary facts about sex and about their future sexual roles.[31]

Observations in Job Corps and other institutional settings have revealed similar representations of masculinity or femininity occurring in these exaggerated forms.

Sexual behavior may be divided into individual physiological function and interpersonal psychosocial gender role behavior. Sexual physiological functioning includes stimulation and response. The possibility of an optimal experience physiologically is increased by the presence of security, a conducive

atmosphere, and a loved partner. Tactile stimuli are probably most important in sexual arousal, although the other senses definitely contribute.[20] In the sexual response cycle, sexual arousal leads to four phases: excitement, plateau, orgasm, and resolution. The excitement phase is more rapid in the male, and in both sexes involves the heightening of sexual awareness and engorgement with blood (tumescence) of the sexual organs. The plateau phase involves maintenance of the heightened arousal state with increase to maximal arousal. The orgasmic phase in the male involves the brief processes of ejaculation, and in the female the pelvic response of contraction; in both there follows release of the engorged blood (detumescence) and muscle relaxation. The resolution phase is a period in which the male is refractory to stimulation but the female has potential for multiple orgastic release.[27] Adolescents are physically able to experience all phases of sexual response whether through masturbation or with other sexual partners.

Sexual psychosocial gender role behavior of young people refers to the personal and interpersonal behavior that is in some way related to the sexual response described above. Young people are "scientists" with their own bodies; they hypothesize (fantasize), experiment, and repeat the experiment if what they did seems to work for them. Today's adolescent sexual scientists — of all backgrounds — seem more open to various alternatives than those of the past. Although there is a considerable range of sexual behavior among adolescents, most choose marriage and conventional heterosexuality by the time they are adults. The failure to consider this, or to accept the fact of human behavioral variation, can lead to overreaction on the part of adults to the normal sexual experimentation of adolescents. Health professionals should be aware that when an adolescent tells an adult about a particular sexual experience, the adolescent is seeking praise for his prowess, emotional support after having felt used or unsuccessful, or reassurance and sound direction after fearfully exploring uncharted and taboo territory.

Health professionals should also keep in mind that much sexual behavior is related to the development of the capacity to care and be cared about — to love and be loved. Tortured or impetuous adolescent journeys to have or not to have "sex" are really more often approaches toward or flights from loving and intimacy. The degree to which an individual integrates sexual experience in a loving intimate relationship, and the timing of that integration depend significantly on

childhood experiences of being loved. The sensori-mental integration of physical closeness, emotional intimacy, and the capacity to give and receive pleasure unfettered is valued enough to be considered a psychosocial sign that adolescence is complete and adulthood reached.

Over the last 25 years, useful demographic information has become available concerning the sexuality of young people. The first comprehensive information on white males and females of varying socioeconomic groups indicated a higher likelihood of coital experience in lower socioeconomic groups, especially among males.[21,22]

An excellent recent interview study by Kantner and Zelnik of a stratified national random sample of white and black women aged 15-19 posed key questions from a public health point of view. It showed that the likelihood of coital experience at an early age was higher for the following subgroups: (1) blacks, (2) those from families with incomes less than or equal to 150 percent of the poverty level, (3) those who don't confide in their parents, and (4) those who attend church rarely or not at all.[19]

Another recent study included both boys and girls, but a smaller total sample and a smaller number of disadvantaged and black youth. This small study tended to confirm Kantner and Zelnik's data for blacks, and agreed in the main with Kinsey's data on coital experience of young white men and women from poor families.[35]

The degree of sexual involvement of young people ranges from total uninitiation to a great deal of activity. One investigator has chosen to classify his sample according to sexual behavior categories, although these are not subgrouped by race or socioeconomic status. Table I generally illustrates the prevalence rates of certain sexual behavior categories among adolescents aged 13 - 19.[35] It shows a variability of sexual experience. A major point to draw from this variability of sexual experience is that it is most hazardous to predict whether an individual youth has considerable sexual experience or is, on the contrary, sexually inexperienced.

Table I

PREVALENCE RATES OF SEXUAL BEHAVIOR IN ADOLESCENTS
Ages 13 - 19*

	% Males	% Females		% Males	% Females
VIRGINS (All adolescents who have not had sexual intercourse)	41	55	NONVIRGINS (All adolescents who have had sexual intercourse one or more times)	59	45
Sexually inexperienced (Virgins with no beginning sexual activities)	20	25	Serial monogamists (Nonvirgins having a sexual relationship with one person)	15	28
Sexual beginners (Virgins who have actively or passively experienced sexual petting)	14	19	Sexual adventurers (Nonvirgins freely moving from one sexual intercourse partner to another)	24	6
Unclassified virgins (Virgins who for whatever reasons could not be classified in the above groups)	7	11	Inactive nonvirgins (Nonvirgins who have not had sexual intercourse for more than 1 year)	13	10
			Unclassified nonvirgins (Nonvirgins who for whatever reasons could not be classified in the above groups)	7	1
Total Number of Males - 212 Total Number of Females - 181					

*Data obtained from 1972 national random survey conducted for Adolescent Sexuality In Contemporary America, by R. C. Sorensen.

Interview studies and psychoanalytic case data indicate that masturbation is very prevalent in young adults, as it is in adults. While masturbation is common even among adolescent boys who are otherwise sexually inactive, it may be less common among girls (although there are some recent studies that indicate a similar incidence of masturbation among boys and girls). There are only a few

adolescents who have experienced no sexual response, and these few generally displace their sexual interest onto strong involvement in work, study, and friendships. There are also isolated adolescents who have neither satisfying interests nor sexual activity. The latter group may elude the health professional because of failure to recognize sexual inexperience and tension as one indication of personality restriction.

The health professional may not be alert to the likelihood and effects of previous sexual abuse. Exposure to sexual abuse in childhood may increase a youth's guilt and fear of bodily pleasure. Sexual abuse or physical beatings in childhood may, on the other hand, contribute to later choice of random sexual liaisons where the youth is carelessly used, repeating the experience of being used in childhood.

What are some of the other specific "experiments" of today's adolescents? They are generally similar to the range of adult sexual behaviors, although most adolescents are less widely experienced than adults. Common behaviors which may involve a sexual response include mutual masturbation (heavy petting or making out), coitus, and oral-genital sex. In adolescence, such behavior is often hidden from adults, and commonly is not fully understood by the adolescent. Partial knowledge about the physiology of sex is the rule and considerable fear and guilt often accompany first experiences.

Unprotected sexual experiences among youths frequently lead to pregnancy and sometimes to early and/or forced marriage. The preparation that most young people have for the responsibilities of parenthood or marriage varies but is often limited or nonexistent. In addition, young adults are often ill-prepared for marital sexuality and there is a prevalence of stereotypic male-female role definitions in young marriages. Economically disadvantaged and minority youth, who appear to have a higher than average rate of sexual activity and adolescent pregnancy, are particularly likely to face responsibilities of parenthood and marriage at an early age.

Same sex behavior is common among adolescents as well as adults. Teams, clubs, schools, cliques, and other social groups are often all male or all female. Embraces, kisses, and other forms of affection often convey friendship without

sexual meaning. As the youth centers his or her life outside the home, the ties between boys or between girls may be strengthened and may take the form of crushes. Occasionally in early adolescence this may result in mutual masturbation or other genital play, usually unaccompanied by love as such. The health professional and counselor should be aware that this sort of behavior is rarely considered truly homosexual, and is ubiquitous enough to be regarded as developmentally normal.[7]

Since homosexuality is defined as preferential erotically motivated sexual behavior between adult members of the same sex, sexual experiences between members of the same sex occurring in adolescence cannot be correctly termed homosexuality.[10]

For some youths, sexual experimentation with same sex peers may be the most secure way to begin sexual experimentation. Some adolescents do continue homosexual relationships through adulthood, either exclusively or in addition to heterosexual relationships. Adult homosexuals are unfortunately subject to considerable familial, social, moral, legal, and medical discrimination and rejection. It is incumbent on health professionals (1) not to moralize to their patients about what they consider natural and unnatural sexual behavior, and (2) to do what they can to eliminate unjustified persecutions of people for their sexual behavior.*

Education of Health Professionals

Until recently, the education of health professionals has not taken into account the social changes of youths, emerging facts of psychosexual development, and advances in the study of sexual functioning and behavior. In most medical, nursing, and social work training programs reproductive psychophysiology was given short shrift, yet the trainees may have felt they had learned all that there was to know about sex. Poor adolescents have been receiving more health attention since the anti-poverty programs were initiated in the sixties, but approaches of health professionals toward problems related to sexuality such as unprotected intercourse, epidemic gonorrhea, homosexual relations in institutions, and rape

* Point (2) was a major recommendation of the National Institutes of Mental Health Task Force on Homosexuality (1970).

have not been generally effective. Many health professionals have difficulty discussing sexual matters with their patients, and their own personal views may intrude heavily on their discussions. Frequently health professionals are uneasy discussing what they feel are private or somewhat seamy matters and tend to speak indirectly and without normal candor. One author points out that in contrast to many health providers, "The majority of lower class blacks [including black youths] perceive sex as one of those human functions that people engage in because of its natural functions."[36] This is not to imply that all disadvantaged blacks have resolved their sexual problems, but only that they are likely to be open to talking about sex. It is good that disadvantaged black youths, as well as many other youths today, are open to such communication.

Young People At High Health Risk

The concept of certain groups being at high health risk is commonly bandied about but infrequently explained. Individuals who, as a group, have certain innate characteristics or are exposed to certain environmental factors that increase the chance of that group having a specific health condition more frequently than a group similar in every way except for these predisposing factors, are said to be at high health risk for that condition. Economically disadvantaged adolescents are at high health risk for a number of health conditions related to sexuality, including pregnancy, venereal diseases, institutional homosexuality, prostitution, and rape.

Rape, according to many sources, is most frequently reported in urban areas populated by poor families. It is difficult to determine whether the high incidence of this crime is primarily associated with the general high rate for all crimes in these geographic areas, whether poor youths more frequently are unable to control their own sexual feelings and behavior, or whether both these factors are significant. Prostitution is another form of sexual behavior for which economically disadvantaged adolescents are at high risk. For a young poor female, prostitution may promise large amounts of money. It may also offer a stable male relationship (the pimp). Increasingly, drug use (especially heroin) requires financial resources that can only be acquired through crime or prostitution. Male prostitution also occurs, though with lesser frequency.

Poor and minority youths are more apt to be in single sex institutions without opportunities for heterosexual relationships. In such settings, heterosexual individuals may become "situationally" or "facultatively" homosexual, generally returning to heterosexual behavior when the opportunity is again present. In such settings there are clear distinctions between relationships in both male and female institutions. In male institutions, role definition usually occurs on a pair basis with one man identifed as the jocker (or wolf) and the other as the fag (or punk). In female institutions, "Prisoners appear to form into pseudo-families with articulated roles of husband and wife, and then, especially in juvenile institutions, extend the family to include father, mother, and children, and aunts, uncles, and cousins."[1] In order to minimize such occurrences in institutions, the presence of sexually secure staff and the development of coeducational settings is advised whenever possible. Management of same sex behavior in institutions should include psychiatric or psychological consultation. The kind of "homosexuality" that is indigenous to single sex institutions for youths should not be confused with the transient homosexual experiences, such as mutual masturbation, that are encountered so commonly among young adolescents that they are considered part of normal psychosexual development. There is some evidence that single sex institutions may reinforce altered gender identity and sexual behavior patterns of adolescents with fluid sexual identities. This may result in persistent adult homosexuality, transvestism, or transsexualism. More investigation is required in this important area before firm conclusions can be drawn. Although some may question whether the development of a homosexual orientation is a cause for concern, the National Institutes of Mental Health Task Force on Homosexuality concluded that, "For most workers in the field, the prevention of development of a homosexual orientation in an individual child or adolescent is seen as one of the most important goals."[11,30]

While same sex behavior becomes a problem for a small segment of poor youths, most youths are primarily heterosexual and as such are at high risk for pregnancy. The incidence of adolescent pregnancy correlates well with contraceptive use.

The recent nationwide interview study by Kantner and Zelnik has afforded useful data regarding contraceptive practices and pregnancy in a black and white female population aged 15 - 19. Contraceptive methods used by those females with incomes of 150 percent of the poverty level or less are shown in Table II.

Table II

METHODS OF CONTRACEPTION USED BY BLACK AND WHITE FEMALES WITH INCOMES LESS THAN OR EQUAL TO 150 PERCENT POVERTY LEVEL

	Pill	Condom	Withdrawal	IUD	Douche	Other	Never Used	Total
Black (N=432)	24.6	33.2	9.1	4.3	8.5	3.1	17.2	100.0
White (N=127)	15.2	25.2	34.7	1.1	0.8	4.4	18.6	100.0
Total (N=559)	20.2	29.4	21.2	2.8	4.9	3.7	17.9	100.0

The differences from the higher economic group in percent of method of use are minimal. Of particular importance is the relatively low rate of use of the most effective contraceptive methods and the frequency of never using contraception. Of all sexually experienced never-married females (15 - 19) surveyed, 47 percent used no contraception the last time they had intercourse and 16 percent had never used contraception. While well over 50 percent of high school graduates had used contraception at last intercourse, the comparable percentage for their age mates who completed 9 or fewer years of school was less than 30 percent.

Not surprisingly, poor adolescents, who tend to obtain less school and infrequently use contraception, have a high pregnancy rate. While pregnancy is in many cases related to the denial of accurate information about sexuality, parenthood, and birth control services for adolescents, sociocultural influences may also predispose an adolescent to pregnancy. In a cultural setting where early childbearing is accepted, little stigma is attached to out-of-wedlock birth. In an extended family unit in which children are frequently cared for by aunts, uncles, or grandparents, adolescent pregnancy is not a surprise though it is a burden to the mother. However, few adolescents or their families are aware that adolescent pregnancy, especially in the early teens, involves serious health and social consequences. Infants born to young adolescent mothers are subject to higher risks of prematurity, mortality, and serious physical and intellectual impairments than are children of older mothers.

Unfortunately many adolescent parents, both male and female, are ill-prepared to provide the parenting necessary to ensure their children's optimal psychosocial development. Not infrequently they may view a child as something that prevents them from having the freedoms enjoyed by their peers.

Another major problem for which poverty adolescents are at higher than average risk is venereal disease. Among the predisposing factors to venereal infection among poor youths are:

1. Lack of adequate education concerning the transmission, symptoms, and cure for venereal diseases.
2. Poor access to and utilization of health care services for treatment of venereal infection.
3. Insufficient routine gynecological services, including cervical cultures for gonorrhea and serological testing for syphilis.
4. Unwillingness to expose the individual(s) from whom the youth might have acquired venereal infection.

Programming Health Services to Become Relevant to Young People At High Health Risk

What can health professionals do to improve the quality of services to adolescents in areas related to their developing sexuality? The major step toward improving services in this area first involves breaking the "language barrier" which prevents discussion of sex-related problems in plain language.[17] Once this is done, and a problem or problems are identified, then a problem-solving approach may be utilized. Frequently there is a need among health professionals for increased knowledge and skills. Although many believe they already know what there is to know about sex, in participation in education concerning human sexuality they often admit that they have much to learn, both factually and about their own "hangups."

Some possible steps for health professionals to improve services offered to young people at high risk for sexual problems are to:

1. Identify the needs of the youths to be served and define programmatic objectives.

2. Identify competent professionals from among your own staff and/or outside consultants to assist with problem identification and problem-solving in the area of adolescent sexual development. (This often involves staff education and training.)

3. Establish working relationships with local resources and national organizations such as Planned Parenthood, Sex Information and Education Council of the United States (SIECUS), The University of Indiana Institute for Sex Research, The Methodist Glide Foundation, American Association for Sex Educators and Counselors (AASEC), Center for the Study of Sex Education in Medicine at the University of Pennsylvania, and The Program in Human Sexuality at the University of Minnesota.

4. Begin ongoing group discussions among health professionals and with young people being served, to explore sexual perceptions, attitudes, behavior, and problems.[3,33]

5. Develop health education liaisons with the schools or churches serving your population of young people, and participate in curriculum development.[2,9] An adequate sex education program that aims at reaching adolescents where they "are at" is probably the single most important need in helping them establish responsible patterns of sexual behavior.

6. Provide special training for interested individuals in workshops and courses sponsored by the above organizations.

7. Evaluate the effectiveness of your approaches by examining your records and determining the degree to which you have met your objectives.

Table III

SELECTED NATIONAL SURVEYS OF SEXUAL ACTIVITY OF YOUNG PEOPLE

Investigator	Method	Age of Population	Year(s) Data Collected	Sex	Total Sample Size	#Low Income Category	#White	#Black	#Nonwhite
Kinsey, A.C., Pomeroy, W.B., & Martin, C.E.	Interview (Nonrandom, not really natl.)	Interviewees Mainly between ages 17-30	1938-1947	M	5300	0-8 Educ. level, or "Day labor & semi-skilled" constitute approx. 700 of this sample	5300	---	---
_____, & Gebhard, P.H.	"	Mainly 2-55 with largest sample 16-40	1938-1949	F	5940	0-8 Educ. level or "Unskilled & Semi-skilled" approx. 1000 of this sample	5940	---	---
Kantner, J.F. & Zelnik, M.	Interview, Stratified random sample	15-19	1971	F	4240	≤150% poverty level over 400	2839	1401	---
Sorensen, R.C.	Written mailed survey; Stratified random sample	13-19	March 1972	M & F	411 M = 214 F = 197	19% of sample from households with income less than $5000	353	---	58

Table IV

DATA FROM NATIONAL SURVEYS ON COITAL EXPERIENCE IN ADOLESCENTS

Investigator	Year	Sex	Age	Type of Experience	Educ./Race/Income Category	Incidence
Kinsey	1938-49	F	16-20	Active incidence, experience, pre-martial coitus	0-8 education level	38%
					College and graduate	17-19%
Kinsey	1938-47	M	16-20	"	Grade school education, College and	85%
					College and graduate	42%
Kantner	1971	F	15-19	"Ever had intercourse"	Black ≤150% poverty	56.3%
					≥150% poverty	51.0%
					All	53.6%
					White ≤150% poverty	21.0%
					≥150% poverty	24.6%
					All	23.4%
					≤150% poverty	31.2%*
					≥150% poverty	26.7%
					Total population	27.6%
Sorensen	March	F	13-19	Nonvirgins	Total F population	45%
	1972	M	13-19	"	Total M population	59%
			13-15	"	M & F population	37%
			16-19	"	M & F population	64%
			13-19	"	White M & F population	45%
			13-19	"	Nonwhite M & F population	51%

REFERENCES

1. Buffum, P. C. Homosexuality in Prisons. Washington, D. C.: U. S. Government Printing Office, 1972.

2. Calderwood, D. About Your Sexuality. Boston: Beacon Press, 1970.

3. Chilgren, R. A. and Briggs, M. M. "On Being Explicit: Sex Education for Professionals." SIECUS Report vol. 1, no. 5: 1-4, 1973.

4. Erikson, E. H. Childhood and Society. New York: W. W. Norton, 1950.

5. Freud, A. The Ego and the Mechanisms of Defense (1937). C. Baines, trans., New York: International Universities Press, 1966.

6. Freud, S. "Three Essays on the Theory of Sexuality" (1905) in Complete Psychological Works vol. 7. J. Strachey, trans. and ed., London: Hogarth Press, 125-245, 1953.

7. Gadpaille, W. J. "Homosexual Experience in Adolescence" in Human Sexual Development: Perspectives in Sex Education. D. L. Taylor, ed., Philadelphia: F. A. Davis Co., 217-227, 1970.

8. Gagnon, J. and Simon, W. "The Social Meaning of Prison Homosexuality." Federal Probation vol. 32: 23-29 (March) 1968.

9. Glick, R., ed. "Family Life Education Draft of Curriculum." Prepared for California Youth Authority, 1973.

10. Green, R. "Diagnosis and Treatment of Gender Identity Disorders During Childhood." Archives of Sexual Behavior vol. 1, no. 2: 167-173 1971.

11. Group for the Advancement of Psychiatry (GAP), eds. Committee on Adolescence. Normal Adolescence. vol. 6, no. 68: (Feb.) 1968.

12. Halleck, S. L. and Hersko, M. "Homosexual Behavior in a Correctional School for Adolescent Girls." American Journal of Orthopsychiatry vol. 32, no. 5: 911-917 (Oct.) 1962.

13. Hammond, B. E. and Ladner, J. A. "Socialization into Sexual Behavior in a Negro Slum Ghetto" in The Individual, Sex, and Society. C. B. Broderick and J. Bernard, eds., Baltimore: Johns Hopkins Press, 41-51, 1969.

14. "Health Care and the Mexican Americans." Job Corps Health Notes March, 1972.

15. Hill, R. B. The Strengths of Black Families. New York: Emerson Hall, 1971.

16. Hollingshead, A. B. and Redlich, F. C. Social Class and Mental Illness: A Community Study. New York: John Wiley and Sons, 1958.

17. Johnson, W. R. Human Sexual Behavior and Sex Education. Philadelphia: Lea and Febiger, 1968.

18. Kantner, J. F. and Zelnik, M. "Contraception and Pregnancy: Experience of Young Unmarried Women in the United States." Family Planning Perspectives vol. 5, no. 1:21-35 (winter) 1973.

19. Kantner, J. F. and Zelnik, M. "Sexual Experience of Young Unmarried Women in the United States." Family Planning Perspectives vol. 4, no. 4:9-18 (Oct.) 1972.

20. Katchadourian, H. A. and Lunde, D. T. Fundamentals of Human Sexuality. New York: Holt, Rinehart, and Winston, 1972.

21. Kinsey, A. C., Pomeroy, W. B., and Martin, C. E. Sexual Behavior in the Human Male. Philadelphia: W. B. Saunders and Co., 1948.

22. Kinsey, A. C., Pomeroy, W. B., Martin, C.E., and Gebhard, P. H. Sexual Behavior in the Human Female. Philadelphia: W. B. Saunders and Co., 1953.

23. Kleeman, J. A. "A Boy Discovers His Penis." Psychoanalytic Study of the Child vol. 20:239-266, 1965.

24. Kleeman, J. A. "Genital Self-Discovery During A Boy's Second Year: A Follow-up." Psychoanalytic Study of the Child vol. 21:358-392, 1966.

25. Kleeman, J. A. "The Establishment of Core Gender Identity in Normal Girls. I. (a) Introduction; (b) Development of the Ego Capacity to Differentiate." and "The Establishment of Core Gender Identity in Normal Girls. II. How Meanings Are Conveyed Between Parent and Child in the First 3 Years." Archives of Sexual Behavior vol. 1, no. 2:103-130, 1971.

26. Lincoln, R. "Population and the American Future: The Commission's Final Report." Family Planning Perspectives vol. 4, no. 2:15 (April) 1972.

27. Masters, W. and Johnson, V. Human Sexual Response. Boston: Little, Brown, and Co., 1966.

28. "Medical Services for Sexually Active Teenagers." Editorial, American Journal of Public Health vol. 63, no. 4: 285-287 (April) 1973.

29. Mizner, G. L. "Evaluation of Homosexual Behavior in Adolescence." Located elsewhere in this publication.

30. "National Institutes of Mental Health (NIMH) Task Force on Homosexuality Final Report." SIECUS Newsletter vol. 6, no. 2: (Dec.) 1970.

31. Rainwater, L. "Sex in the Culture of Poverty" in The Individual, Sex, and Society. C. B. Broderick and J. Bernard, eds., Baltimore: Johns Hopkins Press, 129-140, 1969.

32. Personal communications.

33. Rosenberg, P. and Chilgren, R. A. "Sex Education Discussion Groups in a Medical Setting." International Journal of Group Psychotherapy 23-41 (Feb.) 1973.

34. Simon, W. and Gagnon, J. "Psychosexual Development." Trans-action vol. 6, no. 5: 9-17, 1969.

35. Sorensen, R. C. Adolescent Sexuality in Contemporary America. New York: World Publishing Co., 1973.

36. Staples, R. "Research on Black Sexuality: Its Implications for Family Life, Sex Education, and Public Policy." The Family Coordinator 183 (April) 1972.

37. Stoddard, F., Kraft, D., and Nelson, S. "Adolescent Sexual Experience Among Job Corps Enrollees." In preparation.

38. Stoller, R. J. Sex and Gender: The Development of Masculinity and Femininity. New York: Science House, 1968.

EVALUATION OF HOMOSEXUAL BEHAVIOR IN ADOLESCENCE

By

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A simple, workable definition of homosexuality is that it is erotically motivated sexual behavior between adult members of the same sex.

By extension, therefore, a homosexual is one who is motivated in adult life by a definite, preferential erotic attraction to members of the same sex. Both of these definitions apply to adult life. They do not necessarily apply to homosexual behavior in adolescence. The fact is that by no means all or even most homosexual behavior in adolescence results in homosexuality in adulthood.

Kinsey's figures indicate that 4 percent of all males are exclusively homosexual throughout their lives and that 37 percent of males have some homosexual experience with or without orgasm at some point in their lives after the age of 15. The figures for women are only about one-third as high.[1] Other studies report a somewhat lower incidence of homosexuality in males, but the ratio of male to female homosexuality remains about the same.

These statistics exclude the group masturbatory activities that are so common among boys in the 12-14 age group and the crushes so frequently encountered among girls of that age. Indeed, these behaviors are rarely regarded as homosexual. Sixty percent of boys report some form of homosexual experience before the age of 15, and homosexual contact is more frequent than heterosexual genital experience.

In the normal course of development, the middle and late adolescent years are the years when sexual identity is consolidated through heterosexual experience. There tends to be a sharp decrease in the frequency of homosexual interests and contacts after the age of 16. Some individuals, however, start or continue homosexual behavior between ages 16 and 21, and it is this group with which we are concerned in the Job Corps.

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Homosexual behavior in young people has a variety of causes and meanings. Some adolescents, for example, are delayed in their sexual development. For them, homosexual behavior after the age of 15 may be a more or less normal step on the road to heterosexuality. It may have no more significance than such behavior would have for their more precocious peers at age 12 or 13. They are still at the stage of being simultaneously shy yet curious about their new sexual stirrings. Their own sex is more familiar to them and, therefore, less frightening than members of the opposite sex. As a result, the first exploratory sexual moves are made with members of their own sex.

For others, homosexual interests or concerns may represent a temporary retreat from mounting heterosexual desires. They perceive their anxieties in heterosexual situations, and wonder if this means that they are homosexual. Some become simply very anxious, others may try homosexual acts. This group benefits greatly from brief, dynamically-oriented therapeutic intervention.

Another group may be classified as situationally homosexual. Members of this group turn to homosexual behavior because sexually restricted group living situations deny them access to members of the opposite sex, or because peer group pressures push them toward homosexual behavior. Such behavior is found in prisons, single sex schools, and restricted residential training settings such as Job Corps.

Many people, including adolescents, use their sexuality as a way of getting close to other people, of feeling loved, and of being accepted. This is true both of heterosexual and homosexual behavior.

In some institutional settings, homosexual behavior may be a way of gaining acceptance from sexually deviant staff members; on the other hand, it can be a manipulative device used to bait staff and flush out staff prejudices and insecurities.

For the most part, the homosexual behavior engaged in by individuals in the groups listed above will be largely confined to mutual masturbation among the boys and handholding with facial kissing among the girls. Only occasionally will anal intercourse or mouth genital contacts be involved, but when they are, the likelihood of a more permanent homosexual outcome increases.

Evaluation of adolescent homosexual behavior — its root causes, its depth, its transiency or fixedness, its prognosis — is not the work for amateurs, but for seasoned clinicians. In general, it may be said that the later in adolescence that homosexual activity occurs or continues the more likely it is that the eventual resolution will be a homosexual one.

Among adult homosexual men who have been thoroughly studied psychodynamically, most (over 80 percent) were aware of their sexual interest in other men by the age of 16; by the age of 14, more than half had participated in homosexual activities involving genital contact.[2] These figures are not too helpful prognostically, however, because of the prevalence of such experiences in prepubescence and early adolescence. Other criteria that may be of prognostic significance are the following:

1. A predominantly homosexual fantasy life[3]
   Much of the mutual masturbation that goes on in early adolescence is accompanied by heterosexual fantasies. Such fantasies are prognostically significant in that they presage heterosexual adjustment. Homosexual fantasies, by contrast, may be predictors of largely or exclusively homosexual adjustment.

2. The "in love" phenomenon[4]
   Most male homosexual behavior, especially in adolescence, is unaccompanied by love for the partner. Self-absorption, mutual exploitation, and infidelity are the rule. When feelings of love enter the picture, the likelihood of a true homosexual resolution increases.

3. Heterosexual experience[3]
   Adolescents who have at least experimented with heterosexual dating, petting, or intercourse are less likely to become permanently homosexual than those who have only tried these activities with members of their own sex.

4. Attitude towards the female genitalia[3]
   Among boys, a repulsion or fear of the female genitalia is a relatively poor prognostic sign, as is a long history of

"sissified" behavior and feminine mannerisms. In general, boys who have had feelings of respect and admiration for their fathers tend more toward eventual heterosexuality than do those whose fathers have been feared or absent.

Family Constellation

The most common characteristics of the male homosexual's family structure and dynamics include a hostile or detached father coupled with a closely binding, overly intimate, seductive mother who belittles her husband and dominates both him and her son.[1] This constellation is by no means the only one that can produce homosexual males, nor is a homosexual outcome necessarily likely or inevitable as a result of such a familial background. The male homosexuals studied with the family characteristics just described were white middle or upper class, and all in psychoanalysis. The family backgrounds of the Job Corps population are, for the most part, vastly different, and the homosexuals encountered in Job Corps are likely to more nearly reflect their particular family characteristics than those of the group just reported upon.

A prerequisite for normal sexual development is that the parent of the same sex be neither so punishing nor so weak as to make identification impossible.[5] The parent of the opposite sex must not be so punishing, erratic, or seductive as to make trust impossible. Finally, the parents must not wish too strongly that the child were of another sex and attempt to make him over as a member of that sex.

These prerequisites may frequently not be met in the families from which Job Corpsmembers come. A few studies suggest that some homosexual corpsmembers are likely to be drawn from broken homes in which the fathers are absent, brutal, or passively ineffectual.

In some cases, the mothers may be angry, overburdened women who are struggling unsuccessfully with the demands of working and raising children by themselves. Some mothers may be resentful of the husbands and lovers who did not remain with them or did not shoulder significant responsibility for child-rearing.

In this atmosphere, boys can grow up without an adequate object of masculine identification. A boy may feel that his very gender is, or may become, the object of his mother's sarcasm, derogation, and anger.

Girls reared in this setting may learn to hate and fear men and to expect nothing but abuse, exploitation, and desertion from them. Under these circumstances, it is not surprising that some children fail to develop along normal heterosexual lines.

It is also to be expected that when large numbers of such adolescents are brought together in a communal living setting, a variety of immature or perverse sexual practices can result.

In one study done by Halleck and Hersko in a girls' training school in Wisconsin, about 70 percent of the girls were involved in some kind of homosexual "girl stuff," but less than 10 percent gave evidence of making this a way of life after discharge.[6] How prevalent such behavior becomes depends partly on opportunities for heterosexual outlets and partly on staff attitudes.

How should the staff deal with the homosexual behavior they encounter?

Of prime importance is the status of the staff members themselves with reference to their own sexuality and the adequacy of their sexual outlets outside of the work situation. Adolescents can be enormously provocative and seductive and may provide an irresistible temptation for staff who are sexually insecure or frustrated.

Secondly, the social distance between staff and adolescent should be as low as is consistent with adequate age and role differentiation. This helps to prevent the "us" against "them" thinking that frequently pervades institutional settings.[6]

Thirdly, adequately "mothering" staff members should be available in institutional settings for both boys and girls. Not infrequently, girls in institutions turn toward aggressively homosexual "butches" for the care, support, warmth, and protection that are provided, rather than for specifically genital sexual satisfaction. The presence of sexually healthy women staff members who can fulfill these maternal functions eliminates much of the need that may lead to

homosexual behavior. Similarly, in boys' institutions, there is also a need for nonseductive, nonthreatening motherly figures who can rekindle the loving and erotic feelings that make later heterosexual adjustment possible. The counterface of this coin is the need for masculine figures as objects of identification for boys and as surrogate fathers for girls.

Against this backdrop, when staff members are actually confronted with a homosexual problem they should neither look the other way pretending it doesn't exist nor start a harsh, punitive witch hunt. Both of these merely serve to encourage the very behaviors with which staff members have to contend. Instead, a frank, unemotional confrontation should be arranged in which the staff members serve primarily as interested, nonjudgmental listeners.[6]

Under these conditions, the adolescent will frequently spontaneously voice his concerns, reveal his motives, and clarify the criteria which are likely to lead to a rational diagnosis and a realistic plan leading to resolution of the problem.

It is useful to have readily available psychological or psychiatric consultation so that specific problems may be discussed and appropriate plans made for dealing with them. But even in the absence of such specialists, the physician, nurse, or counselor can do a great deal to allay anxiety, depression, shame, and guilt simply by providing an understanding ear and some accurate information.

Thomas Wolfe once said that in his own eyes every adolescent is a monster. Young people deserve a far better designation. With proper support and understanding, they can benefit greatly from the knowledge that they are not unique or alone in terms of the sexual conflicts and problems they face.

Finally, if the aim is to reduce homosexual behaviors and promote healthy psychosexual development, then greater efforts must be made to develop more coeducational Job Corps centers. Even the Ivy League bastions of sexually segregated education are beginning to recognize the benefits of more natural daily work and play association with members of the opposite sex, as opposed to the traditional big college weekend dating situation. As a result, they are not only opening their doors to coeducational student bodies, but are beginning

to accept coeducational living as a fact of life. There seems to be little reason why a system which promotes homosexual behavior should continue to be preferred to one which is more likely to lead toward healthy heterosexual development.

REFERENCES

1. Bieber, Irving, et al. Homosexuality: A Psychoanalytic Study. New York: Basic Books, 1962.

2. Broderick, C. B. "Preadolescent Sexual Behavior." Medical Aspects of Human Sexuality vol. 2, no. 1: 20-29 (Jan.) 1968.

3. Gadpaille, Warren J. "Homosexual Experience in Adolescence." Medical Aspects of Human Sexuality vol. 2, no. 10: 29-38 (Oct.) 1968.

4. Halleck, S. L. and Hersko, M. "Homosexual Behavior in a Correctional Institution for Adolescent Girls." American Journal of Orthopsychiatry vol. 32, no. 5: 911-917 (Oct.) 1962.

5. Kinsey, A. C., Pomeroy, W. B., and Martin, C. E. Sexual Behavior in the Human Male. Philadelphia: Saunders, 1948.

6. Ovesey, Lionel. Homosexuality and Pseudohomosexuality. New York: Science House, 1969.

THE VENEREAL DISEASES

By

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Venereal diseases, particularly syphilis and gonorrhea, have become more prevalent today than they have been since World War II. Today, approximately 75 percent of all venereal disease patients are less than 30 years old, and at least 25 percent are 19 years old or younger. The proportion of cases reported in the younger age group continues to increase each year, particularly among teenagers.

Syphilis and gonorrhea are the major venereal diseases in the United States. Except for their mode of transmission, they differ significantly, one from the other, in etiology, pathophysiology, and diagnosis and treatment.

SYPHILIS

Last year 23,000 early cases of syphilis (i.e., cases which were either in the primary or in the secondary stages of the disease) were reported. This is the largest number of cases to be reported in two decades. Despite this dramatic rise in the number of cases, funding for syphilis control programs has not increased in nearly a decade. The growing gap between the increasing number of cases and the decreasing size of epidemiologic field personnel is an important contributory factor to the near epidemic proportions of the problem.

Diagnosis

Three weeks after contact a primary lesion, the chancre, develops at the site where the spirochete entered the body. The chancre is generally a hard lesion, usually a centimeter in diameter, with a rolled border. It is generally, but not always, located on the genitalia, and is usually a painless ulceration. While any genital lesion should be subject to examination, darkfield examination of the exudate from the chancre will clearly identify the spirochete responsible for syphilis. Most health department laboratories are equipped to make darkfield examinations and blood tests upon physicians' requests.

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In the early stages of syphilis, blood tests are usually diagnostically helpful. As a rule, the serological tests tend to become positive at a rate of 25 percent per week. Thus, a chancre that has been present for 1 week has only about a 25 percent chance of being associated with a reactive serologic test. A lesion that has been present for 2 weeks has a 50 percent chance, and so on. While the serological test is a highly useful aid in diagnosing syphilis, the darkfield examination with visualization of the infective organism is far more reliable.

In the natural course of the disease, the chancre tends to be self-healing; it usually disappears 4 - 6 weeks after its initial appearance whether treated or not by the physician or the patient.

Following the disappearance of the chancre, patients will enter a rather brief period of latency in which there are no signs or symptoms of the disease. Latency usually lasts 3 - 6 weeks and is followed by the secondary stage in which there are a fairly large number of systemic signs and symptoms; but these are only suggestive of the disease and not diagnostic. The patient usually experiences some malaise, often a sore throat, generalized lymphadenopathy, and frequently alopecia, of either the scalp or the eyebrows. Though often unaware of it, the patient may have a low-grade fever. He may also have a wide variety of dermatological manifestations, including involvement of the palms of the hands and soles of the feet. These symptoms all have to be considered in the differential diagnosis of secondary syphilis.

A serological test for syphilis is indicated any time there is a widespread skin eruption. If the patient has secondary syphilis, he will almost always have a reactive test. Occasionally a patient with secondary syphilis has a nonreactive blood test, but this is caused by the prozone phenomenon; had serial dilutions been done on the serum, specimen reactivity would have been found.

The darkfield examination is also helpful in the diagnosis of skin lesions except in dry areas, such as the palmar or plantar lesions or lesions on glabrous skin. A positive darkfield is usually easily obtained from moist lesions found in the damper areas of the body such as under the breast, the axillae, the groin area, or on the genitalia. Lesions in these areas tend to become hypertrophic; they usually readily exude serum and are highly infectious.

Approximately 3 months after the initial lesions of secondary syphilis have appeared, the patient once again enters a period of latency that may last for a great many years. In fact, for two-thirds of syphilitic patients, latency will last for the rest of their lives without any serious sequelae. We are concerned with those syphilitics who remain untreated and develop serious sequelae 4 - 20 years after they contract the disease. Approximately 10 percent of these persons will develop neurosyphilis, which primarily includes general paresis and tabes dorsalis; about 10 percent will develop cardiovascular syphilis; and 15 percent will develop gummatous syphilis or benign tertiary syphilis of the skin and bones. The gumma, the principal pathological lesion, is a form of granuloma. The term benign tertiary syphilis for this form of the disease is certainly a misnomer because if the gumma happens to form in the brain, heart, or other vital organ it can have a fatal outcome. About 20 percent of the untreated patients will ultimately die as a result of their disease. On the average, life expectancy is shortened 8 years for untreated syphilitics.

Treatment

Despite the fact that penicillin therapy has been the most effective specific treatment for syphilis for the last 25 years, there is no indication to date of the development of resistance by the spirochete.

In the primary and secondary stages of the disease, benzathine penicillin G is the treatment of choice. Usually a single injection of 2.4 million units is adequate. Although frequently prescribed, there is no need to give aqueous procaine penicillin G in a series of daily injections for 10 days. In latent cases, the Public Health Service suggests increasing the dosage to 6 to 9 million units of benzathine penicillin G, divided equally and administered two to three times, with a week between injections. (There has never been any evidence that treatment with more than 9 million units provides additional benefit. No amount of therapy is likely to reverse the structural damage that has already occurred in late cases; a certain percentage of patients will continue to deteriorate despite any therapy.)

Although the incidence of congenital syphilis has declined since state laws began requiring prenatal testing, the disease still occurs. Last year there

were some 400 cases reported in the United States. Several thousand cases of congenital syphilis not identified at birth were also reported in older individuals. The treatment for congenital syphilis in newborns is a single injection of benzathine penicillin G, of 50,000 units per kilogram.

Patients with primary syphilis will revert under treatment to a nonreactive serological status 6 - 9 months after treatment is initiated. Patients with secondary syphilis will take longer because their titers are usually much higher. The usual titer in a patient with primary syphilis is less than 1 to 16 dilutions. It is usually greater in secondary syphilis and may be very high, over 1 to 1,000 dilutions. When there are very high titers, it may take 12 - 18 months for seroreversal to occur after therapy. About 80 percent of patients who have had syphilis for 2 or more years can be expected to remain seroreactive the rest of their lives, regardless of treatment. This does not mean that further treatment is indicated. Serofastness is an immunological marker rather than a constant concomitant of active infection.

GONORRHEA

Gonorrhea is the major venereal disease. Last year 634,000 cases were reported — the greatest number of cases ever recorded in American history; the incidence of the disease was also higher than it had ever been. For 13 out of the last 14 years, the annual increase in reported gonorrheal incidence has been 15 percent.

There are many reasons for the increase in this disease, but two stand out. The first is the change in contraceptive habits. As many women have switched to oral contraceptives there has been a definite decrease in the use of the condom. Most experienced venereologists believe that the condom, properly used, is one of the best means of protection against infection, especially for a female in contact with an infected male.

Secondly, there has been a marked liberalization in sexual behavior and attitudes, particularly among young adults.

Incidence of Gonorrhea

It is estimated that for every reported case of gonorrhea there are between three and four cases that are not reported. For instance, we know that the private

medical sector treats 75 percent of venereal disease cases but according to several studies, it only reports approximately 11 percent of these cases. Using these data we can crudely estimate that there are approximately 2.5 million new cases of venereal disease each year in the United States.

In the next few months, a national campaign will be launched against gonorrhea. To help understand this new national effort, it is useful to review some background concepts of this disease.

Clinically, gonorrhea differs in men and women; it seems like two different diseases. When a male develops a gonorrheal infection, there is usually a rather brief incubation period that averages 3 - 5 days. (A few patients may have a much longer incubation period.) Approximately 85 percent of males will become symptomatic within 1 week, although 15 percent will not develop symptoms for a prolonged period that may last up to 30 days.

On the other hand, most women who contract gonorrhea have either no symptoms or such slight or nonspecific symptoms that they do not realize they have an infection. Thus, they do not usually seek medical care. By contrast, males develop a urethral discharge with painful and frequent urination and usually seek treatment from a physician or public clinic. It is estimated that at least 80 percent of infected women are asymptomatic, but perhaps 20 percent or so are sufficiently symptomatic with leukorrhea or complications such as pelvic inflammatory disease that they are brought to medical attention. Perhaps 1 to 3 percent will develop metastatic disease, usually the gonococcal dermatitis syndrome or gonococcal arthritis. Most of the remaining women will eventually have a spontaneous remission, probably as a result of a poorly understood immune mechanism.

The gram stain technique is an excellent diagnostic method for detecting gonorrhea in the male. When compared with a good culture technique, it will pick up 97 to 98 percent of all cases. Since the gram stain technique is adequate to diagnose the disease in the male, its use is encouraged. The diagnosis of gonorrhea on the basis of history or symptoms alone can be deceptive; for instance, nonspecific urethritis can appear symptomatically identical. By contrast, in the female neither signs nor symptoms are at all a reliable basis

for diagnosis. Several studies have indicated that the gram stain will miss perhaps half the women who are infected. Frequently the stain will be negative, and in a small percentage of women the smear may actually be misleading even when positive, because there are several organisms such as staphylococci and streptococci that may lose their gram positive tinctorial quality and resemble gram negative organisms. Thus, it is important to rely on a culture in diagnosing the disease in the female.

Transmission of Gonorrhea

The asymptomatic state in the female has been referred to as latent gonorrhea. This is a very poor term because it is quite different from latency in syphilis; I would rather it be described simply as asymptomatic gonorrhea. Latency in syphilis is asymptomatic, but it is also noninfectious. Thus, an individual with latent syphilis will not transmit the disease. This is not true of women who are asymptomatic with gonorrhea; they are fully infectious to their male partners. Thus, women with asymptomatic gonorrhea are true carriers.

Gonorrhea is not equally infectious for males and females. Statistics suggest that the risk to an uninfected female from an infectious male partner is quite high, even on the basis of a single exposure. Over half of the females who come into contact with an infected male will become infected. The reverse is not true at all. Given an infected female, the risk of transmission to an uninfected male is very low, probably less than 5 percent for each exposure.

Duration of Infection

Males are infectious for approximately 2 weeks — during the incubation stage, which lasts an average of 5 days, and during the following symptomatic period, which lasts 5 - 7 days. As has been pointed out, when the male becomes symptomatic he generally seeks treatment voluntarily which promptly renders him noninfectious.

In the female, the situation is entirely different. In those that do not seek attention for gonorrhea or have it discovered in a routine culture, the disease may last an average of 6 - 9 months, after which they are either spontaneously or therapeutically cured. Sometimes the cure is inadvertent since many who

have the infection may take antibiotics for another problem and thus cure themselves without ever realizing that they had the disease.

How do we know the disease lasts 6 - 9 months? Through statistical analysis we arrive at a figure of about 6 months, and through analogy with the carrier state of the meningococcus, a very closely related organism, we arrive at a figure of about 9 months. Screening studies that have been conducted over the past few years tend to confirm a 6 - 9 month duration of the disease in the untreated female.

From a purely statistical view one finds that about 400,000 male cases and 100,000 to 150,000 female cases are reported annually. These figures give the impression that gonorrhea infects a relatively small proportion of the female population and that this relatively small number of highly promiscuous women is responsible for a great many male infections, but this impression is erroneous.

While the male-female ratio of reported cases of gonorrhea is 3:1 for a year, a very different picture emerges when the epidemiology for a short time period is examined. From screening studies of women in all walks of life, we estimate that at any one point in time there are 600,000 to 700,000 cases of gonorrhea. The number of males at any one time who either are in the incubation stage or are symptomatic, but have not yet received treatment, is much smaller than this, probably about 50,000. Therefore, there is a large infectious reservoir constituted primarily of asymptomatic females.

Realistically, given the vacillation in funding there is probably very little that we can expect to do to prevent the disease from spreading. It is a matter of developing long range programs in the school systems, educating young people, and changing contraceptive practices. This will be a very slow process and the long term gain in disease control is very difficult to predict.

What can be done to reduce the number of women in the disease reservoir? Screening with routine cervical cultures identifies a certain number of women and removes them from the reservoir of infection. The only other way we have of finding cases today is through case interviewing, tracing back from an infected male to find his asymptomatic source of infection and then bringing her to medical treatment. When the size of the reservoir is reduced, we will be

able to reduce the number of males becoming infected, and thus reduce male morbidity. One of the most important indices of progress is the male-female ratio of reported infection. Where carefully conducted screening programs have been carried out on a widespread basis, we have been able to demonstrate that gonorrhea can be controlled and the case rate reduced. But to do this we find that, instead of the traditional 3:1 ratio, the male-female ratio approaches one and even becomes less than one. Eventually, programs may actually be finding more females with the disease than males. So the focus of new programs will be to introduce widespread screening and to provide some local epidemiological competence.

Treatment

Although there are many effective drugs for treating gonorrhea, at the Center for Disease Control it is felt that penicillin remains the drug of choice because even relatively low doses of penicillin are also effective in thwarting any incubating syphilis. It is hoped that a reduction in the number of cases of infectious syphilis will be a by-product of treatment for gonorrhea. This is feasible since patients who contract both syphilis and gonorrhea simultaneously number between 1 and 3 percent. If we effectively abort the disease in the far larger number of gonorrhea patients, we can probably also reduce the incidence of early syphilis morbidity by as many as 10,000 cases annually.

The current recommended treatment schedules for gonorrhea call for (in both sexes) aqueous procaine penicillin G, 4.8 million units intramuscularly divided into at least 2 doses (in one visit), together with 1 gram of oral probenecid, preferably given at least 30 minutes prior to the injection. Or, for both men and women, 3.5 grams of ampicillin and 1 gram of probenecid may be administered orally at one time. When penicillin or ampicillin are contraindicated, men may receive 2 grams and women 4 grams of spectinomycin intramuscularly. Alternatively, both men and women may receive oral treatment consisting of tetracycline, 1.5 grams initially, followed by 0.5 grams 4 times daily for 4 days (total dosage of 9 grams).

CONTRACEPTION AND FAMILY PLANNING

By

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In 1967, President Johnson made a big point of publicizing the fact that the United States passed the 200 million population figure. We are now up to about 210 million. This represents an increase of 4,100 percent since 1800. Until 1850, the world population had stayed under 1 billion; it has increased to 3 billion in a little over 100 years. If we continue at the present rate of increase, the population of the world will double by the year 2000 and be at the 6 billion level.

The importance of family planning is not all a matter of the "numbers game"; it permits conceived children to be wanted children. The purpose of contraception is to divorce the sex act from conception. Today, 20 percent of children born in this country are the result of an "unwanted" pregnancy. The tragedy of an unwanted pregnancy has a multiple impact. It is a tragedy, not only for the mother and father, but also for the child that is born into this situation. The prevention of pregnancy is a matter of vital personal concern, not because we are running out of food supply, not because we are running out of land on which to live, not because we are all going to be inundated by some massive plague, and not because of the increase in population, but because, by and of itself, it offers people a choice as to whether they do or do not want to have a child.

Conception

As a natural event, conception, contrary to popular belief, is not readily achieved as the consequence of a single sexual experience. Statistics vary from 1:25 to 1:50 that pregnancy will occur following a single act of unprotected intercourse. However, if one follows 100 couples who are not using contraception for 1 year, about 85 of these 100 couples will conceive. Thus, at the end of the year, 15 couples will be possible infertility problems.

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At the end of 6 months without using contraception, only 60 percent of these couples will have conceived. Thus, it usually takes some cycles of exposure before conception takes place.

Contraception

As a method of family planning and population control, contraception includes a variety of methods, agents, and devices of varying degrees of effectiveness. The degree of effectiveness depends only in part on the reliability of the method, agent, or device. Often, in greater part, it depends on the level of the patient's understanding of each contraceptive's function, application, and limitations. Finally, and perhaps most importantly, it depends on matching the appropriate method, agent, or device with the patient — a decision to be made with the greatest of care by the physician or family planning counselor after thorough evaluation of such factors as the patient's physical and emotional status, educational level and understanding, psychological needs and limitations, and the role of religious beliefs.

The Rhythm Method

This method of contraception is based on sexual activity only during periods of nonovulation. It revolves around two factors that have periodicity but no precise constancy, namely the time and length of the menstrual cycle and the time of ovulation. Since neither of these can be known with mathematical precision, sexual activity, if conception is not its objective, can be a hazardous undertaking. In short, the rhythm method must be regarded as a highly unreliable method of contraception. For the first year of use, the pregnancy rate as determined by use of the Pearl formula is about 34.*

Withdrawal

Perhaps more effective, but also with inherent hazards, is withdrawal of the penis prior to ejaculation. It is essentially an unreliable method because it depends on human decision and control during a time of heightened emotions.

* This means that if 100 fertile women used this form of contraception for 1 year 34 would become pregnant. This method of rating chances of contraception through the Pearl formula yields what is called the pregnancy rate. The pregnancy rates given for each form of contraception represent both failures of the patient (i.e., not using the method) and failures of the method.

In addition, there is little to recommend it in the emotional arena, as it often leaves both sexual partners unsatisfied and troubled. The first year pregnancy rate is about 16.

The Pill

Oral contraceptives, such as the "pill," function by suppressing ovulation. They contain a large amount of steroid hormones, which frequently produces changes similar to those in pregnancy — nausea, vomiting, cramps, and breast tenderness and enlargement.

There are severe problems inherent in the use of oral contraceptives, and they have been accused of everything from hair loss, high blood pressure, and the formation of dangerous blood clots to depression and loss of libido. Such events occur in an extremely small percentage of patients. Yet it is precisely because of the possible dangers that the "pill" should not be used without a physician's prescription, following thorough examination and evaluation of a woman's physical and psychological status.

Patients on the "pill" should have an annual examination with special attention given to blood pressure and to any possible signs of gynecologic malignancy. Anyone with a familial history of cancer in an endocrinologically active organ should avoid birth control pills. The same is true for an individual who has continued evidence of a liver disease. The "pill" requires a fully functioning liver for its metabolism. A history of thromboembolism (pulmonary or cerebral) is also a contraindication. A patient who has had diabetic changes during pregnancy should not be on these pills because there is a chance that she might develop outright diabetes in the nonpregnant state. A tendency to uterine fibroids is a relative contraindication to the use of these pills.

The number of deaths from oral contraceptives has been highly overstated. In users compared with nonusers between the ages of 35 and 44, there is a fourfold difference in death rates due to thromboembolic phenomena, as reported in the British studies. However, the death rate in women who complete pregnancy is much higher than the death rate attributable to the oral contraception. The pregnancy rate for the combination pill for the first year of use is 0.9.

The Diaphragm

A diaphragm must be used with a coating jelly or cream, and should be fitted initially by a physician to determine the correct size. The diaphragm must be refitted between pregnancies, and changed every 2 years if a pregnancy has not occurred. Along with the spermicidal cream or jelly, the diaphragm acts as a mechanical barrier preventing sperm from entering the uterus. It does not interfere with ovulation. Any physician who prescribes a diaphragm should make sure that the patient has a basic understanding of the anatomy of her sexual organs, and the proper placement, removal, and care of her diaphragm. Insertion and removal should be shown by model and actual demonstration on the patient. The pregnancy rate for the first year of use is 15.

The Intrauterine Device

The intrauterine device (IUD) which the physician places in the uterine cavity does not prevent fertilization, but it does prevent implantation of the fertilized egg in the uterine cavity. The Lippes loop is the best device commercially available at the moment. Although there are occasional pregnancies with the IUD, the intrauterine device does not create many of the problems associated with the "pill." Most people who discontinue using the IUD do so because of bleeding and/or discomfort due to cramping. A small number expel the device; this is not a serious problem, if one notices the expulsion. Since the IUD has an anchor string that remains in the vagina, the patient is asked to check it regularly, and if at any time she does not feel the string, she is instructed to report this to her physician immediately. The first year pregnancy rate for the IUD is 2.

The Condom

This is the favorite and most familiar contraceptive for teenagers and young adults because of its relative availability and easy use. Also, the condom is relatively effective as a means of preventing venereal disease because it serves as a mechanical barrier to the transmission of the infective organisms. The first year pregnancy rate for the condom is about 15.

Foam

This contraceptive consists of a spermicide that comes in an aerosol-type container and is sprayed into the upper vagina prior to intercourse. It has nothing to do physiologically with inhibiting ovulation. Its effectiveness depends on preventing the sperm from penetrating into the uterine cavity. If applied properly, it is effective much of the time. To be on the safe side, we recommend that foam or jelly be used in combination with a condom. For use of foam alone, the pregnancy rate for the first year of use is 20.

The Postcoital Douche

This type of contraception, douching following intercourse, is based on the principle of evacuating sperm from the vagina. It is a risky form of contraception because, even if it is done immediately and thoroughly following intercourse, sperm, which are highly motile and ejaculated high in the vagina, may have already passed into the uterus. For the first year of use the pregnancy rate is 33.

The Morning-After Pill

Like the postcoital douche, this is a form of ex post facto contraception. Unlike the postcoital douche, it is a very effective method. However, it is not utilized very much. It requires high doses of diethylstilbestrol (an estrogen). Two 25-milligram tablets for 5 days, the necessary dose, will cause nausea and vomiting in 30 to 40 percent of patients. It is effective in preventing pregnancy, but its effectiveness depends on when it is used. It is only effective after ovulation has taken place, but since pinpointing ovulation is difficult, it is hard for a woman to know when she is at risk for pregnancy and should take the pills.

Abortion

Abortion is another after-the-fact method of contraception. Until relatively recently, legal abortion was qualified with the word, "therapeutic." Today, this qualification is being replaced by the word, "elective." Since abortion is the only method to prevent the continuation of pregnancy once it has begun, it has helped prevent the birth of many unwanted children. Nonetheless,

as a method of population control and family planning, elective abortion may be a passing phenomenon. In the future, we are going to have better methods of contraception that are more widely available than those we have today.

The physician or counselor responsible for presenting the choice of whether a pregnancy will be continued in a teenager or young adult is confronted with complex medical, social, and psychological problems that make the decision concerning abortion much more difficult than it was in the past. Traditionally, the decision concerning abortion was based on very narrow concepts, i.e., the continuation of the pregnancy constituted a danger to the health and life of the mother, or represented certain special psychological, social, and legal problems as in the case of rape or incest. Changing social attitudes concerning sex and the emergence of the women's liberation movement, supported by recent changes in the law liberalizing abortion practices, are practical matters which must be considered by those responsible for advising young women in the matter of continuing their pregnancies. The most commonly used method for terminating pregnancy during the first trimester is suction curettage.

Suction Curettage

This is the most popular method of elective abortion. It involves vacuum aspiration of the uterine contents. This procedure can be done safely and effectively during the first 3 months of pregnancy. It is being increasingly employed in early pregnancy. In pregnancies that have gone beyond 12 weeks, the procedure generally undertaken involves injections into the amniotic sac, done transabdominally. This and other surgical procedures involve much greater risk than suction curettage, which is performed on a 1-day basis at many health care centers. For example, New York City, when it was one of the few areas with a liberalized abortion law, reported approximately 570 abortions per thousand live births.

In 1967, the California abortion law went into effect. That year at Los Angeles County — University of Southern California Medical Center, there were two therapeutic abortions performed. In 1971, there were 5,000. An increase in the availability of elective abortions has greatly decreased the number of illegal abortions and in doing so has diminished infected "criminal" septic

abortions. This experience is true for New York State as well. The septic abortion rate at Los Angeles County — University of Southern California Medical Center in 1966 was 7.2 percent. We are now down to close to 2 percent. In terms of absolute numbers, these percentages mean that 646 women admitted with the diagnosis of abortion in 1966 came in with septic, infected, and what we considered "criminal" abortions; by 1971, the comparable number had dropped to 49. Although the birth rate has not dropped, the number of infected abortions has declined considerably.

Sterilization

This is a very effective method of contraception, and one that should be kept in mind for those who do not want children or who have produced the size family they want. In all states, voluntary (elective) sterilization is up to the decision of the patient, physician, and hospital involved. At our hospital, it is a one-to-one decision between the doctor and the patient. Male sterilization or vasectomy is a simple surgical procedure performed under local anesthesia, which takes about 5 minutes to perform. The patient can be back at work the next day. The operation is designed to interrupt the flow of sperm only. Everything else, such as seminal fluid and ejaculation, remains normal. It is estimated that over 500,000 vasectomies were performed in the United States during 1971 and over 700,000 in 1972.

Tubal sterilization in the female is superficially similar to the male operation — the fallopian tubes are tied and cut. In the past, this has been a major abdominal surgical procedure. In recent years, a new procedure, laparoscopy, has made this a shorter, easier procedure. The operation is performed under light general anesthesia and by use of a periscope type device. Laparoscopy involves the insertion of the instrument at the lower border of the umbilicus. The abdominal contents can be easily visualized. Each fallopian tube is picked up, coagulated, and transected by the use of electrocautery. If this procedure is undertaken in the morning, the patient can be discharged to her home by evening of the same day.

Both of these forms of male and female sterilization are almost 100 percent foolproof methods of permanent contraception.

Summary

Many contraceptive methods are available but their relative effectiveness, danger of side effects, and ease of use vary considerably. Abortion is an "after-the-fact" method of contraception that is generally safe. Sterilization, while practically 100 percent effective in preventing conception, is usually irreversible. An active viable family planning program should provide avenues of discussion, appropriate methodology, and satisfactory follow-up procedures for contraception, abortion, and sterilization.

MENTAL HEALTH EMERGENCIES

By

Alan Morgenstern, M.D.*

Introduction

From the psychiatric point of view, Job Corpsmembers form a very high-risk group for three reasons. First, they often have had very unstable or negative family and social relationships, and they are members of a socio-economic group which is particularly vulnerable to some of the more major psychiatric disorders, such as schizophrenia. Second, they are adolescents, with all the turmoil which adolescence ordinarily involves. Third, they have been uprooted from their home environments which, however difficult they may be, are still familiar. Corpsmembers must face the psychological strain of a new kind of setting and a new kind of social adaptation.

It is natural, therefore, to expect a significant number of psychiatric emergencies in this group. Management of these emergencies is generally not difficult; but, unlike dental and surgical emergencies, the person providing the psychiatric first aid will not be the physician, but instead the medic, the nurse, the counselor, the residential advisor, or whoever is close at hand and can best relate to the young person in distress. Often, by the time the patient reaches the mental health professional (e.g., psychiatrist, psychologist, psychiatric social worker), the acute problem is over.

Within the context of this presentation, a psychiatric emergency in its simplest terms implies that the individual involved is unable to care for himself because of emotional difficulties, or constitutes a threat to others. The most common signs of this condition are anxiety, panic, and fear. A recent Job Corps psychiatric emergency involved a youngster who came to the nurse simply complaining of being panicked, very tense, and hyperventilating. We discovered he was worried because his mother had written asking him to come home and help her and his siblings. He didn't know whether to heed her request or remain on center. This incident is typical, as is another psychiatric emergency involving

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the youngster who is so depressed that we cannot be sure if he will be able to care for simple bodily needs like eating or sleeping, or if he is or is not a danger to himself. Other psychiatric emergencies involve youngsters under the influence of drugs (i.e., on a "bad trip") or going through a period of social isolation from the peer group. There are occasional youngsters who manifest psychological problems through serious aggressive behavior including homicidal threats. A fairly typical example of this is the youngster at the Job Corps center on the Oregon coast who had limited intellectual ability and had difficulty keeping up with the other corpsmembers. He was teased unmercifully by his cohorts. One day, while working in the kitchen, in the midst of frequent teasing, he picked up a carving knife and went after one of his fellow corpsmembers. This type of emergency does not permit the luxury of speculating about the underlying personality problem or the psychodynamics of his disorder. It calls for immediate action. Evaluation comes later. Lastly, we see the occasional youngster with a frank psychotic episode who imagines that the FBI is tapping his phone or that his mind is being controlled by his enemies, or who is having hallucinations.

The Nature of Psychiatric Emergencies and the Role of Health Professionals

What is the role of the health professional in the care of these patients? The immediate threat may be the corpsman with the carving knife intent on carving up someone, the corpswoman with a handful of barbiturate pills threatening to swallow them, or the corpsman on a "bad trip." There are a very few questions we must ask ourselves quickly. First of all, what are the exact target symptoms which need immediate attention? By target symptoms we mean that kind of behavior which must be controlled before other symptoms can be dealt with. The girl must be stopped from swallowing the barbiturates. The boy cannot be permitted to cut up his rival. The youngster who is confused by drug intoxication cannot be permitted to leave the center to wander the streets or drive a car. The second immediate question we have to ask ourselves is this: Since there are 168 hours in the week, why has the patient become symptomatic at this particular time? As we ask this question, we begin to understand something about the cause of the illness and its dynamic development, and to get some clues which can be used to help the youngster pass the crisis.

Normal adolescents are notoriously changeable. They may show more emotion and emotional changes during the course of an hour than their parents show in a month. Typical are such swings as saying, "I'll never talk to Deborah again," and being discovered half an hour later talking to Deborah on the phone. Such emotional swings are accentuated in the Job Corps population where the atmosphere is conducive to contagion of behavior from either other corpsmembers or staff. If a number of corpsmembers are upset, this feeling may spread through a center. If a number are angry, that too spreads through the center. In addition, all adolescents, when placed in an institutional learning environment such as the Job Corps, are prone to assuming the attitudes of those parent substitutes who help them. Teachers, residential advisors, health professionals, administrators, bus drivers, or anyone else in this role can provoke an epidemic of psychiatric disorders. A teacher who is very depressed or a residential advisor who becomes paranoid can spread depression in the classroom or paranoia in the center.

The number of such psychiatric emergencies will be proportional to the quality of the center life as a whole. The most effective way of dealing with such emergencies is to prevent their occurrence by providing a Job Corps environment of social and psychological stability. Such a setting also serves as a therapeutic milieu in which trained personnel can function more effectively in dealing not only with crises but also with long term problems.

One of the special problems of Job Corpsmembers is a kind of culture shock resulting from physical dislocation. The Job Corpsmember from the Mississippi Delta is indeed in a strange and often threatening world when he arrives in Oregon where the Columbia River enters the Pacific. The converse is equally true when the youngster from rural Oregon finds himself in a large metropolitan area. Add to this overlay a variety of precipitating factors and you have the basis for a psychiatric emergency. A common example of a precipitating factor is bad news from home. The corpsmember receives a letter from his mother, a welfare recipient, who writes, "It's wonderful you're in the Job Corps, but I think maybe you ought to come back home and help out the family." This youngster is caught between a desire to continue his training and a feeling of responsibility toward his family. He may develop a panic reaction.

The ordinary problems of grief and mourning associated with the loss of a loved one — a parent, grandparent, or other family member — are often strongly felt by Job Corpsmembers. The loss of a boyfriend or girlfriend has a particularly strong impact on youngsters far from friends and family. The results of loss may be expressed in a range of behaviors from devastating depression to uncontrollable rage. Loss of personal relationships is perhaps the most common cause for upsets which are quite capable of precipitating psychiatric emergencies. Just as rupturing personal relationships are at the core of many psychiatric crises, maintaining strong and meaningful relationships is vital both to the prevention of crises and to effective treatment. Thus, the health professional becomes a therapeutic agent himself by offering the proper relationship to the youngster in need.

Just as we have "crises of engagement" as in the case of the youngster from Mississippi coming to the Columbia River, we often see "crises of separation" when the Job Corpsmember prepares to go home. No matter how well the preparation for departure is made, corpsmembers occasionally show signs of anxiety of such magnitude that we can anticipate an outbreak of overt psychiatric symptoms.

Up to this point we have been looking at the nature of psychiatric emergencies and at some examples. It might be profitable to look at them from the point of view of the youngster actually in an emergency situation. What does he feel? Often his primal feeling is a fear of loss of control, even in the youngster chasing around with the butcher knife. He is in a state of panic; it's terrifying to lose the ordinary control exercised by the conscience. It is particularly shattering to lose someone you love, even if he is just a boyfriend, and to think you have no control over life. Despair can be so profound that the wish to die may be overwhelming. In such situations, we can hardly expect the youngster to do much for himself. This is the time for someone else to act. What, then, should we expect of the health professional? How should he act in such crises?

Obviously, if anyone is going to be panicky, it should be the patient and not the health professional. There will be occasions when professional self-control means stepping on your foot or biting the inside of your cheek,

doing anything to maintain an air of calm, a look of security, so that the corpsmember in turmoil sees in the health professional a haven from the storm. A psychiatric crisis is not a time for sharing worries; it's a time for helping someone in distress. If a young woman says, "I want to die; life is not worth living, is it?" this is clearly not the time for a philosophic discussion. The answer is a simple, straight-forward "Yes, you should live." What is needed is a brief, absolutely reassuring response. If emotions are contagious within the peer group, they are all the more so from health professional to patient. For this reason, professionals have to be particularly careful to control what they are doing.

How does one start? One of the best ways, certainly one of the most effective and reassuring methods of communication, physical contact, is too often overlooked. You see an old friend and you put your arm around his shoulder. You see another friend and you shake his hand. Far too many people are overly inhibited about physical contact. Too often — and inappropriately — physicality is viewed in purely sexual terms. Yet there is nothing quite so supportive as a gentle gesture, a hand on a hand or a hand on the shoulder. Such gestures can be buttressed by offers of a cup of coffee, a glass of water, a place to rest. What we are trying to do is let the patient know within the first five seconds of crisis that there is a person who cares, who wants to help, and upon whom he can depend. This is really easy to do; but to succeed, the health professional first and foremost must avoid the contagion of the crisis. Only then will he be able to function, to be truly supportive, to listen, and to talk.

How should the health professional begin to talk to the youngster in crisis? One approach is to use highly structured questions in emergencies, such as "Jane, you're very upset today; tell me what exactly is going on so I can help." Now the word "exactly" tells Jane not to be ruled by the strength of her feelings, but to use her intellectual ability as much as she can to talk about what's upsetting her. The very first communication in the phrase "so I can help," makes it unequivocally clear to the patient that the health professional wants to and can help. In the emergency, the health professional should be able to almost always guarantee the patient that he can help. This may not be equally true for the patient's underlying problems. If the patient has

nothing to say, but just looks catastrophically depressed, the health professional must look for or actually create an opening, such as, "Cheryl, I know that things look awful for you; tell me about it so I can help." This type of opening statement, as you hear it, seems reasonable to you. The fact is that it is reasonable. I emphasize this because you need some way of communicating with the patient. Once the patient has replied, for all practical purposes the emergency has already begun to diminish, because a link has been established between health professional and patient.

The next step is to look for the immediate precipitating circumstance — the lost boyfriend, the upsetting letter from home, the school disappointment, the problem of graduating and going back home. Once the patient begins to talk about the precipitating problem he will begin to feel better.

Often associated with psychiatric emergencies are symptoms requiring treatment with medication. For example, a wide variety of physical symptoms may occur which often subside with a small amount of a sedative or tranquilizer, such as hyperventilation syndrome, with overbreathing, palpitation, chest pains, sweating, etc. In the presence of such symptoms, a useful statement is, "I can see that you're having a great deal of physical difficulty, but this medication will help it promptly." Not every medication used in psychiatric emergencies is employed for its pharmacologic effect; sometimes it is used for its placebo effect. Medications help the acutely anxious patient, partly for symbolic reasons because every time a medicine is given it carries a message of hope. In prescribing medication it is important to convey the idea that it will be helpful. For the anxiety attack, barbiturates are perfectly reasonable medication. They go to work faster when given intramuscularly. The fear that such drugs will be habituating or addicting to the patient in an acute psychiatric crisis is unrealistic. When the crisis passes the need for medication will also pass. In point of fact, what happens is that the patient generally goes to sleep. Upon waking, and this is especially true for the resilient adolescent, he feels much better.

Just as sleep plays a reparative role in psychiatric emergencies, so does the recognition of the sick state by health professionals, administrators, teachers, the patient himself, and his peer group. The crisis associated with graduation

may not seem as threatening as pneumonitis, but it can be shattering. If everyone concerned can be persuaded that the patient will probably be sick only for a couple of days, and that all he needs is rest and sometimes medication, a benevolent chain of events of immeasurable value will have been put into motion for the patient. Instead of being considered "odd ball," "chicken," or "shiftless," he will be thought of as an upset young person who will soon recover and return to the Job Corps family. The stage can be set by the health professional with as simple a remark as, "John's had a rough time, but he's had some medicine; he's going to need some rest in the dorm and he'll be a lot better soon."

One begins with the patient and with the Job Corps staff to initiate a series of what one hopes will become helpful, self-fulfilling prophecies. To the patient, one says, "Yes, you soon will be better"; to the staff, "Yes, Sara will soon be back on her feet." Whatever effort is made should be tinged with the sound and look of optimism. On the contrary, if teachers and staff are told "Things look grim; there's probably no way out," they'll probably treat the youngster as if that were true and, instead of effective therapy, antitherapy will have been set in motion.

How to Respond to Suicidal Behavior

The ingredients of the suicidal crisis are fairly easy to describe. Adolescents represent a population at fairly high risk. The prime characteristic of suicidal behavior is that it is the most communicative of all behaviors. It expresses the cry of loneliness, of despair, of hopelessness. It is often a call for help and intervention. While waiting for the psychiatrist, the health professional can begin the most important part of treatment by holding the patient's hand, by getting him a cup of coffee, by gently probing into the circumstances surrounding the crisis, by encouraging tears and anger, and by talking in a reassuring manner. At the same time there are practical matters to bear in mind. If the one threatening suicide is thinking of jumping out of a window and is seated on the fifth floor near a window, obviously someone should remain with the patient or, better still, take him to the ground floor. If the patient keeps referring to pills which he has been collecting, someone had better get to the hiding place. This is not a time for indirection, for tact or politeness. It is the time for unequivocal, direct action, and, more often than not, the patient will be considerably reassured if

someone steps in and protects him from self-harm. It is appropriate to ask the patient what he is thinking about, especially if it is about suicide. In a very real sense, the more conversation there is, the greater the opportunity to offer help and the less likelihood that an overt suicidal act will take place.

There is a special knack of talking to the patently suicidal person. One should be sympathetic but not overly kind. A girl may say, "I can't go on, my boyfriend left me like everyone left me before." Although this may be true, it should not evoke a commiserating reply such as, "Isn't that just awful." That is neither supportive nor therapeutic. A better statement would be, "You're goddamn right it's awful," with the words and tone chosen very carefully, so they are in agreement with the patient's lament, but engender a different focus, a different outlook. How does it feel to be jilted? The therapist's reply acknowledges that, of course, it feels rotten, but it also suggests that the patient should feel angry.

It is particularly important to the depressed or suicidal patient who is being seen professionally for the first time when and where the next appointment will be, and with whom. If the patient's crisis does not appear to be immediately life-threatening, with some assurance an appointment can be made for several days later. Otherwise, it should be set for the next day. The important thing is for the patient to know exactly what to count on. Then, and only then, can both patient and therapist relax from the urgency of the crisis.

It is a sad fact of pharmacology that anti-depressant drugs do not act quickly enough in a suicidal emergency. At a minimum, they require 3 or 4 days to begin to work. If a suicidal crisis takes place in an area remote from psychiatric help, there's a good deal to be said for thoroughly sedating the patient. Of all the medications for safely keeping someone asleep while awaiting emergency psychiatric consultation, chlorpromazine, given intramuscularly, is the best. It's the most sedative of the tranquilizing drugs, and it, at least, guarantees some breathing time in which to bring patient and specialist together.

Brief mention should be made of psychotic reactions. These may be associated with a longstanding intrapsychic problem or may be related to a

crisis in the individual's life or associated with drug abuse. How does one deal with such crises? Clearly, what the patient does not need is a trembling nurse or medic, but a large enough group of people confronting him so he doesn't for one moment imagine he can carry out his aggressions. If the therapist is plainly frightened and the patient is aware of it, he generally tends to get worse. So in the very rare aggressive crisis, what is needed is at least ten husky men who will let the patient know there's not a chance of aggression being carried out. The time to talk is afterwards.

AGGRESSIVE BEHAVIOR: ETIOLOGY AND APPROACH TO CONTROL

By

Conyers Thompson, M.D.*

L. F. Richardson, in his book, Statistics of Deadly Quarrels, states that in the years between 1820 and 1945 a total of 59 million people were killed by other humans in wars, skirmishes, quarrels, or murders. To know that one man killed another once every 68 seconds over a period of 126 years is profoundly shocking.[3]

Americans in the 20th century have been exposed for a sustained period to increasing violence in our society. Violent riots in our cities and on our university campuses and a continuing series of political and non-political murders are forcing us to find ways to prevent and control violent behavior.

Yet not all aggressive behaviors are destructive. Some have played a positive role in man's evolutionary history. Throughout history, when man's vital interests were in jeopardy his aggressive response has often been necessary for his survival. Today, however, aggression/violence has less value as an adaptive mode for dealing with the stresses of modern life.

What do we actually mean by aggressive or violent behavior? Daniels defines aggression as "the entire spectrum of assertive, intrusive, and attacking behaviors. Aggression, thus, includes both overt and covert attacks, self-directed attacks, dominance behavior, such defamatory acts as sarcasm, and such assertive behavior as forceful and determined attempts to master a task or accomplish an act. Violence is defined as destructive aggression which involves inflicting physical damage on persons or property. Violent inflicting of damage is often intense, uncontrolled, excessive, furious, sudden, or seemingly purposeless. Some might extend the concept of violence to include inflicting psychological damage and infringing on human rights."[1]

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Present data indicate that man's capacity for destructive behavior has biological roots, though these data are unclear as to whether the tendency to manifest destructive behavior is intrinsic or needs to be evoked. Knowing that there is an innate capacity for expressing aggression, it is necessary to differentiate aggression manifested in a drive toward mastery or competence from destructive aggression. All aggressive behavior need not be seen as destructive behavior. It is imperative to emphasize that destructive behavior is derived from a biological drive, but is not thought to be instinctual in and of itself; it may be seen as a response to circumstances and can be significantly modified by environmental factors.

Aggressive or violent behavior that occurs in a situation in which it is reactive and proportional to a frustrating situation is sometimes termed primary aggression. Dealing with frustrating situations in this way tends to reduce tension and prevent repression and the creation of a "reservoir of hostility." Civilizing influences have generally been such in the adult's experience that he is able to convert hostile impulses into acceptable behaviors even when hostile attacking behavior might be justified. Higher brain centers involved in cognition, symbolization, and inhibition serve to control reactive anger. These controls are learned during development largely through observing parental examples and identifying with adult behavior. Overcontrol of primary aggression may have serious consequences in the form of deferred expression of anger with explosive bouts of rage, or such overcontrol may lead to seriously inhibited character development.

Secondary aggression is a term used to refer to violent behavior that is disproportional or even unrelated to current provocation. Aggressive personalities who have a reservoir of "stored hostility" are ready to unleash violent actions with no apparent motivation or with insufficient provocation. Disordered behavior of such a nature may occur over the full range of psychopathology. Such behavior may be manifested by the immature, neurotic, psychopathic, or psychotic person. Aggressive behavior in such individuals tends to be repetitive in spite of disastrous circumstances ensuing from their actions. The psychic integration of these individuals is such that they usually do not learn from experience.

Secondary aggression can be used as a mechanism to reduce anxiety and to attempt to satisfy needs. Constant demands for attention or a posture of toughness may serve to compensate for feelings of deprivation, inferiority, and vulnerability. The violent person's early developmental circumstance is frequently one in which the lack of gratification and the level of frustration serve to produce a psychic state in which the basic needs come to represent a signal of potential danger or rejection. The presence of a helping person may produce anxiety and activate defensive measures to ward off the feared rejection.

The unloved person commonly feels worthless and unlovable. A sustained desire for support and gratification exists but is not met, leading to new frustrations that result in anger and violence. A precarious balance is often present between the tendency toward violence and the tendency to dampen all aggressiveness for fear of losing the actual support that is present or the potential for such support in the future.

The process whereby successful identification occurs with an appropriate person of the same sex has gone awry in the antisocial person. The living circumstances of the violent individual often have not provided an adequate model for identification. Without an adequate father with whom he can identify a male may use aggressive behavior to assert his tenuously held masculinity. It is also important to note that hostile behavior may appear as a reaction against passive-dependent wishes that have not been satisfied in some regular fashion by the external world in which these individuals live.

Identification with the aggressor is a regularly used defensive measure in the violent person. Growing up with a violent parent can serve to produce either an individual who is submissive and frightened or one who is as angry and violent as his parent. It is a well-documented fact that the violent have frequently been the victims of violence. It is also a well-known fact that certain persons seek out punishment, with the feeling that punishment is preferable to being ignored. Such a state may be the outgrowth of a violent relationship between parent and child in which violent action comes to represent symbolically the desired feeling of security which the child sought in his

relationship with the parent. Bad parents or their symbolic representation are felt to be better than none.

There are a number of socially acceptable mechanisms available for dealing with hostile impulses. These mechanisms must be learned in order to deal with reactive anger, lest such anger is to lead to immediate violent action or is repressed and becomes part of the reservoir of unconscious hostility. The conversion of a feeling to an idea that is verbally expressed may serve to prevent discharging angry feelings through action. Thinking processes can often deal effectively with hostility through the use of the defensive measures of intellectualization and rationalization. Sublimation is an especially useful defense for the individual and for society, as it aids constructive discharge of aggressive energy rather than its repression.

People can learn that anger is a signal that can be used to set in motion adaptive processes that may identify a thwarted goal and allow for an appropriate response. There must be continual reinforcement of the idea that violence is unacceptable as a coping mechanism, that alternative means of expressing aggressive impulses are necessary for the individual and his society.

Man is not limited to defending himself against hostile impulses. The human being also has the capacity for empathy and identification; he can feel the pain of another. Empathy and identification with one's fellow beings can serve to promote warm ties and decrease violent behavior.

Deprivation, frustration, and other situational factors are the most visible contributors to violence. Contrasted with man's innate biologic structure and the relatively fixed nature of personality structure, situational factors may be the most readily modifiable of the major causes of violence. Some important situational contributors of violence are a precipitating event, the availability of weapons, drug and alcohol abuse, heightened need for obedience to authority, and low expectancy of punishment. Special attention should be paid to boredom and its healthy relief, since man seems to have an innate desire for stimulation and excitement.

The availability and use of appropriate amounts of force can act as an important deterrent to violence; the use of abusive force can serve to continue the cycle of frustration and mounting anger.[1]

How does one evaluate and deal with the potential threat to violence in an individual? In assessing the person, one should look for fears of losing control and for evidence that he has been seeking help in an anxious and persistent way. This search for help frequently takes a disguised form. Important factors in the individual's past history as indicators of his potential for violence are: the presence of earlier episodes of altered consciousness (dissociative or trance-like states), previous acts of violence, and a history of previous suicide attempts. The early history of the violence-prone person may reveal severe emotional deprivation, persistent exposure to brutality and violence, cruelty to animals, and malicious fire-setting.

In evaluating the current status of the individual, one should examine his important interpersonal relationships as well as his relationship with the institution, in this case the Job Corps center. Factors in the center structure (administrative, educational, disciplinary, etc.) may serve as instigators of aggressive behavior. Behavior on the part of others (or the center) which tends to decrease an individual's self-esteem can also serve to set off violent activity.

The trainee approaches the staff member with the hope, at some psychic level, that he can gain help in dealing with the threatened breakthrough of his hostile impulses. The plea for help must be taken seriously and an active process undertaken to augment the trainee's ability to maintain his impaired psychic controls. In some people, violence is a frequently used method of coping. It may be seen by a person as his sole method of dealing with issues pushing in on him. Verbal exploration of the internal and external states of the individual must be undertaken. This approach will allow for a rational appraisal and working through of the immediate crisis and has the possibility of serving as a model for the individual in dealing with future problems of living.

If cognitive processes, verbal expression in the presence of a helping individual, and environmental manipulation are not enough to reestablish psychic equilibrium, then medical evaluation should be made with consideration of the use of drugs and/or hospitalization.[2]

When a corpsmember enters a Job Corps center it is a time of special stress for him. Whatever his world was like prior to his coming to the center, it was, at the very least, familiar. It may not have been ideal, but it was dotted with familiar landmarks and anchors. During his period of early adaptation, when everything appears strange and potentially threatening, it is particularly important to provide administrative and staff support to facilitate an easy transition from the known to the unknown. During this phase of adaptation, the corpsmember's sense of security may be undermined with resulting increased anxiety and possible aggressive behavior.

Daily group meetings of 1 to 10 incoming corpsmembers with a single staff member may serve to reduce the anxieties and frustrations of adaptation. These meetings can serve to impart needed information about center life and vocational choices as well as provide the opportunity to discuss such issues as concern over homosexuality, fear of personal assault, and educational concern. The staff member/group leader can be an important figure in setting a base of cooperation on which education and counseling can stand; he may be able to spot corpsmembers who have difficulty in controlling aggressive impulses. Hopefully, he will also have a positive effect as a model with whom the corpsmembers can identify.

Forces that will serve to give the corpsmember a stable identity or sense of who he is and where he is going should be set into play. This can occur on the personal level through close and concerned work on the part of teachers, counselors, and peer group advisors. A network of models for identification should be established. Such a network can serve to lend direction and purpose to a student, thus increasing his sense of security and decreasing the likelihood of his demonstrating violent behavior.

The center gradually becomes home to the corpsmember. The attempt to break up old patterns of behavior requires a great deal of effort on the part of the individual and the center. This can be facilitated by the development of a sense of belonging to a new group, by the desire to be known as a member of this group. The sense of belonging will allow the development of interests in common goals and may serve to increase the empathic capacity of the corpsmember. Interest in superordinate goals and increased empathy will serve to lessen preoccupation with self, thereby decreasing the aggressive potential.

Especially during the early months at the center, an attempt should be made to have the corpsmember's primary focus be center life as well as center work. This will serve to strengthen his sense of identity as a trainee and decrease identification with any disruptive aspects of his life at home.

One lesson that has been taught over and over is that extremes of violent and destructive behavior are likely when extravagant aspirations are aroused only to be followed by the shock that these aspirations are not to be fulfilled. Overpromising will only serve to enhance earlier frustrations and illusions.

The process of developing realistic aspirations in the corpsmember should begin with recruitment personnel and be continued during orientation, and is of crucial importance at the time of vocational choice. Feedback to the corpsmember on his progress should be both regular and accurate. To have one's hopes dashed early may lead to disappointment, but to have one's hopes dashed after much work and possibly after painful activity may lead to anger and aggressive behavior.

It is imperative that students do not come to expect magical solutions from the staff members. The staff should, however, provide an undergirding of support to dispel anxiety, alleviate unnecessary frustrations, and raise the corpsmember's expectations to a realistic level. With his progressive growth, the type of support given can be adjusted, with the support eventually being withdrawn altogether.

Regression or slipping back to old ways of doing things is a strong possibility in the face of major stress. This does not mean that realistic goals must be abandoned or that frustration must flare into aggressive behavior; rather, alternative solutions may be sought within the confines of reality by the corpsmember, both alone and with the help of staff members.

The residential counselor is an important figure in the prevention of aggressive behavior. He is in an ideal position to identify those who are likely to display aggressive behavior, and the counselor can be effective in helping a corpsmember convert aggressive potential into healthy assertion.

For example, a corpsmember with considerable aggressive potential may be encouraged to take a leadership role in affairs of the floor of his dormitory. Thus, the energy is deflected from destruction to mastery and construction.

The residential counselor may also serve an important function as the group leader at floor or unit meetings. At such meetings, gripes/hostility can be aired for a set period, and thus provide a verbal rather than an action model for dealing with anger. One effective model allows a specific time period for the gripe session; this is complemented by a longer period of constructive work/discussion on a topic of the corpsmembers' choice.

The center director may contribute to decreased outbreaks of aggressive behavior by allowing corpsmembers to have access to him on a regular basis. This will be helpful in handling specific problem issues and also serve as a feedback system to enable the center director to correct structural and personnel faults that may predispose to the development of aggressive behavior.

When attempting to prevent and control aggression, it is important to analyze each significant aggressive or violent incident. This analysis, done by the appropriate people, should provide keys to methods of preventing repetitive outbursts by the individuals involved. It may also provide information on general changes that should be made to avert outbreaks of violence.

Aggressive behavior should be handled as quickly as possible by an appropriate person in authority. The event and the actual participants must be rapidly identified and isolated. Dealing with disturbances in this way will serve to limit the element of contagion and firmly establish the notion that authorized persons will act effectively and humanely to preserve an ordered set of conditions and environment.

The most effective deterrent to violent behavior in the Job Corps setting is the corpsmember's development of a working relationship with an essential number of staff in which the corpsmember feels the staff members' healthy support and concern. This approach engenders hope. A close relationship exists between hopelessness and violence; thus the establishment of hope can often serve as a real deterrent to violence. The challenge lies in the problem

of effectively creating hope based on the realities stated here. The gross effect of environmental deprivation on an individual must be considered a major factor to be overcome in attempting to increase levels of hope among minority and economically disadvantaged young adults. Chronic failure and deprivation, generating hopelessness, takes its toll on individuals, leading to apathy and a chronic lack of confidence that will not easily be dispelled by increased educational and economic opportunities alone.

What are the techniques for the creation of hope? In the Psychology of Hope, Stotland observes that hope can be preserved in the face of great, difficult goals by setting partial goals which can be attained one at a time during a short period. The acquisition of each partial goal adds to confidence in the attainment of the major goal of the group and helps maintain hope over the long struggle.[4]

REFERENCES

1. Daniels, David N., Gilula, Marshall F., and Ochberg, Frank M. Stanford University, Committee on Violence., eds., Violence and the Struggle for Existence. Boston: Little Brown and Company, 1970.

2. Fawcett, Jan. Dynamics of Violence. Chicago: American Medical Association, 1971.

3. Richardson, L. F. Statistics of Deadly Quarrels. Pittsburgh: Boxwood, 1960.

4. Stotland, Ezra. Psychology of Hope. San Francisco: Jessey-Bass, 1969.

TOBACCO AND ADOLESCENTS

By

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General concern about the increasing incidence of drug abuse has been focused on those agents which perceptibly modify behavior and are associated with immediate gross physical and even psychological effects. The last 5 years have seen a virtual stampede to educate preadolescents and adolescents about the dangers of marijuana, hashish, barbiturates, amphetamines, psychotropic drugs, cocaine, and heroin. Without questioning the need for accurate information about all of these agents, none of them has as deleterious an impact on the American people as the use of tobacco. Yet tobacco is frequently omitted from discussions of abused drugs. There are several reasons for this omission.

Tobacco abuse has been widespread, gaining social acceptance (though later for women than for men) many decades ago. Abuse of other drugs has become associated with the youth culture, a group of lifestyles which most adults view with lack of understanding and with apprehension. By contrast, about half the adults in this country are tobacco users. They regard tobacco as a friend which relaxes them, gives them something to do when they are bored, or provides a substitute for food in satisfying their oral urges.

Despite the prevalence of tobacco use, most people are not cognizant of the effects cigarette smoking has on their bodies, or upon others close to them while they are smoking. It is also hard for many people to consciously connect cause and effect, especially when the two are separated by a period of 20 or 30 years. To information which demonstrates long-range deleterious effects of smoking, smokers are tempted to respond "so what," or "I'll worry about that when it happens," or "I don't want to live to be too old anyway." This notwithstanding, statistical evidence clearly points to smoking as the cause of more premature deaths than any other drug or even auto accidents. The average

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heavy smoker lives approximately 8 years less than the average nonsmoker. It has been estimated that 300,000 to 350,000 Americans die prematurely each year on account of their smoking habits.

In the United States today there are over 40 million smokers over the age of 17, and they smoke about 500 billion cigarettes annually. Approximately 1.1 million teenagers are added to the smoking ranks every year.

Cigarette smoke contains numerous chemical combustion products, including ammonia, nitrogen, formaldehyde, carbon monoxide, and nicotine. It also contains a number of carcinogens and cocarcinogens. The specific short and long term effects of introducing each of these substances or classes of agents into the body are largely unknown.

Most of the known short term effects of smoking are attributable to nicotine. Nicotine causes several observable variations in body physiology: an increase in heart rate, in blood pressure, and in the flow of saliva and, among other effects, impairment of peripheral vascular circulation. Smoke itself directly irritates the bronchial tree, causing increased secretion of mucous from glands in the walls of the trachea and bronchi. A chronic nagging cough often accompanies the irritation. The smoke itself also compromises the ability of the trachea and bronchial tree to remove many noxious materials found in the smoke by depressing ciliary action. Smoking causes, in addition, a significant increase in the carbon monoxide content of the blood. The exact impact of this increase is not clear, but it is known that increases in carbon monoxide concentration of similar magnitude do interfere with some of the cerebral processes. Still another result of smoking is bad breath.

Unlike the use of many other drugs, smoking has a direct and demonstrable impact on the physiology of those in close proximity to a smoker. Nonsmokers have been found to have a measurable concentration of carbon monoxide in their lungs and bloodstreams when they are present with a group of smokers in a poorly ventilated room. Thus, smokers are subjecting nonsmokers to some of the hazardous consequences of smoking, both short and long term, entirely without consent of these nonsmokers. On a social level, few nonsmokers enjoy having smoke blown in their faces. Smokers encroach on the air space

of others — they pollute the air in a fashion similar to the industrial concerns that have drawn sharp criticism from environmental protection groups. We impose emission standards on industry — but not on the smoker.

The short term effects of smoking, annoying as they can be, are only the tip of the iceberg. It is the insidious, often poorly understood, long term effects of smoking which result in premature death. One of the most clear-cut examples of such an effect is lung cancer. The average male smoker at ages 45 through 64 has an 11 times greater chance of developing lung cancer than the nonsmoker.[1] In the case of lung cancer there is a clear dose-response relationship with cigarette smoking, in terms of number of cigarettes smoked per day, degree of inhalation, age at which smoking began, and number of years of smoking.

Smoking over a period of time also leads frequently to chronic bronchitis and pulmonary emphysema. The probability of an average smoker dying of these diseases is more than six times that of a nonsmoker.

The greatest number of deaths directly related to smoking is in the familiar category of coronary heart disease, which cuts short the lives of many people in the prime of their productive years. In 1967 alone, 345,154 men and 227,999 women in the United States were recorded as dying from this cause. Numerous studies have shown that smoking increased the risk of death from coronary heart disease (CHD) by an average of between 50 and 400 percent. Smoking also seems to increase the risk of death from cerebrovascular disease (stroke), although the increased risk factor has not been well defined.[2]

Smoking has been associated with an increase in cancer of the larynx, lip, bladder, mouth, and throat. It is also associated with an increased prevalence of peptic ulcer disease, and seems to reduce the effectiveness of medical therapy for peptic ulcer.

Adolescents should be informed of the effects of smoking on pregnancy. There is good evidence that smoking exerts a retarding influence on fetal growth. Several studies have shown that women who smoke have a better than average chance of having their pregnancies end in stillbirth or spontaneous abortion. There is also a higher neonatal death rate among babies of smoking mothers.[4]

A very recent report which has received considerable attention in the press has shown an association between smoking and skin wrinkling, i.e., individuals who smoke get more wrinkles sooner than nonsmokers. Widespread publicity on this particular association may well have a greater impact on cigarette consumption than dissemination of information about all the other more physiologically serious but less socially stigmatizing health consequences of smoking.

Understanding what can be done about tobacco abuse requires an awareness of the causes of smoking. To design an effective tobacco abuse program for Job Corpsmembers we must try to answer a number of questions, including:

- How big a problem is tobacco abuse among economically disadvantaged adolescents, and how does this pattern differ from that of adolescent use in general?
- What are the factors that cause adolescents to start smoking?
- What are the factors that make an adolescent continue to smoke?
- Does being in Job Corps have any impact on smoking habits?

A study of abuse of a number of drugs, including tobacco, is currently underway in Job Corps. It should help to answer some of these questions, and will provide specific information on smoking prevalence, rate of use, age at which smoking began, attitudes toward smoking, and degree of awareness of health consequences. Three comprehensive studies of teenage smoking, conducted in 1968, 1970, and 1972 by the National Clearinghouse for Smoking and Health,[5] revealed a number of patterns which are relevant to Job Corpsmembers and the Job Corps setting:

- From 1968 to 1972 among teenagers 12-18, there was an increase in regular smokers from 14.7 percent to 15.7 percent for boys, and from 8.4 percent to 13.3 percent for girls.
- Over that 4-year period the largest absolute increases in smoking rates, from 15.7 percent to 25.8 percent, occurred among 17-year-old girls.
- Girls (but not boys) living in metropolitan areas are more likely to smoke than those in nonmetropolitan areas.

- The smoking level of both boys and girls is highest in homes where one or both parents are absent. Among girls the smoking rate is twice as high if both parents are absent (20.7 percent) than if both are present (9.7 percent)*
- Both boys and girls from lower socioeconomic groups are more likely to smoke than their counterparts from higher socioeconomic groups.
- Boys 12-18 and girls 15-18 in non-college preparatory courses are more likely to smoke.
- Parents' smoking behavior has a strong influence on their children's propensity to use tobacco:

	% of Boys Smoking	% of Girls Smoking
Both parents smoke	24.4	11.3
One parent smokes	16.9	10.6
Neither parent smokes	11.5	8.1

- Teenagers whose older sibs smoke are more likely to smoke, regardless of whether their parents smoke.
- For 18-year-old boys and girls the smoking rates are highest for those not attending school (59.1 percent and 41.1 percent), respectively).*
- Boys who worked at least sometime during the past year are more than three times as likely to smoke as those who didn't work at all (71.6 percent vs. 23.0 percent). For girls the comparable figures are 47.3 percent vs. 16.3 percent.*
- The changes in cigarette consumption between 1968 and 1972 have had the effect of making the smoking behavior of boys and girls more similar.

All of thes observations reinforce the conclusion that Job Corpsmembers are a very high-risk group for tobacco abuse.

While these statistics indicate the extent of the problem and the epidemiological factors that influence tobacco abuse, they give us only partial answers to

*Figures from 1970 study.

two vital questions: "Why do adolescents start smoking?" and "Why do they continue to smoke?"

Few studies have focused on the reasons why indigent adolescents start smoking and then continue to smoke. Several studies, however, have assessed the attitudes of adolescents of higher socioeconomic status. One of these, in which 1,466 New York college students were interviewed,[3] revealed several major reasons for initiating smoking (in order of decreasing salience):

1. For novelty or curiosity
2. To relax and release tension
3. Because their friends did
4. To impress others
5. To feel more self-confident

When these students were queried as to where they had gotten the notion that smoking is relaxing, impressive to others, or builds self-confidence, the two most frequent responses were "from adults" and "from advertising."

Advertising works. During 1970, the last full year preceding the ban on the use of the airways for cigarette advertising, profit-conscious cigarette companies spent approximately $217 million in television and radio advertising. Advertising attempts to make people feel that cigarettes are natural extensions of their fingers, that they, individuals, are not real people unless they smoke, that pleasure is not possible without smoking, and that unwillingness to smoke imperils both masculinity and femininity and makes true relaxation impossible. In TV commercial programming, when a character is in a tense situation or when he wants to unwind, he immediately lights a cigarette.

The reasons mentioned in connection with initiation of smoking have some bearing on why adolescents continue to smoke. But other reasons for continuation should also be cited. One of these is habit. The habitual smoker is often unaware that he is taking out and lighting a cigarette. He smokes automatically. Oftentimes such an individual cannot give a reason why he is smoking. Some smokers state that it gives them something to do with their hands. Others feel that smoking is the only thing that can relax them.

The strongest reasons for continuing use have to do with the effects of tobacco as a drug or collection of drugs. Cigarettes create psychological dependence, a mental craving for the drug. When habitual smokers stop smoking they experience psychological withdrawal with discernible changes in mood and behavior. In addition, some researchers feel that the nicotine in cigarettes can also produce physical dependence.

Many people have questioned whether the anti-smoking campaigns launched by the private health agencies such as the American Cancer Society and the American Heart Association have had any effect on smoking habits in teenagers. The study cited earlier shows a pattern of increasing abuse between 1968 and 1972. However, since that period cigarette commercials have been banned from the airways, and the results of similar studies over the years will assess the impact of this ban.

It may be significant that in the national survey of teenage smoking, of those interviewed, 93 percent of boys and 86 percent of girls answered "yes" to the question, "Would you say smoking is harmful to health?" Significantly, among regular smokers a "yes" answer came from 82 percent of boys and 86 percent of girls. One encouraging finding for the period 1968-1970 is that the percentage of all teenagers who felt that they would not be smoking in 5 years increased (for boys 76.9 to 84.0 and for girls 87.6 to 88.0). Even among teenage smokers, the percentage who felt they would not be smoking in 5 years increased (for boys 32.0 to 46.3 and for girls 31.2 to 46.2).[5] The disparity between the expectations about future smoking behavior on the part of adolescents and the strong pattern of continued tobacco abuse is striking.

What are effective ways of helping adolescents to not start smoking and of motivating them to quit if they have already started? A key element of any approach is to communicate accurate information about smoking which is appropriate to their backgrounds, concerns, and aspirations. If a ghetto youth is living primarily in the streets and is concerned with how to make it through each day, there is little logic in trying to awaken him to what smoking may do to him in 30 years. What generally concerns adolescents are their looks and sexuality, having spending money, and being accepted by their peers. An

effective anti-smoking campaign must, therefore, focus on these issues. For example, a media campaign might focus on changing the positive image of a smoker as a well-dressed, relaxed young man or woman. It could depict smoking as something that detracts from natural good looks, and as unworthy of popularity. In the area of sexuality, much might be made of the fact that smoking causes bad breath, that smoke smells bad and gets into a smoker's hair and clothing, that to kiss a smoker is a "bummer," etc.

One area that has not received sufficient attention from anti-smoking propagandists is the cost of a cigarette habit. Smoking is expensive, but because it is a recurring low-outlay item rather than a single capital expenditure, the real monetary costs are not often recognized. A "pack-a-day" smoker spends about $100 per year on cigarettes. Perhaps a campaign which showed both a $100 tape deck and 365 cigarette packs, and indicated this was the trade-off an adolescent might consider, could bring the problem into clearer focus for him.

The last general adolescent concern indicated above is peer acceptance. Traditionally peer acceptance has been a significant reason for initiating and continuing smoking. This situation might best be altered by directing a campaign at nonsmokers. If a nonsmoker can be convinced that his friend's cigarette smoke is harmful to both of them, he may start to exert pressure on that friend to stop smoking. Such a suggestion is likely to have special import if it is directed by a member of one sex to an interested member of the other sex. Since the majority of adolescents still are nonsmokers they can have a strong influence on peer acceptance/rejection of smokers.

Although health per se may not be a high priority concern for the average economically disadvantaged adolescent, self-image and body integrity are very important. Adolescents are very concerned about being normal. Thermograms which visually demonstrate a decrease in temperature (and therefore circulation) of parts of the body after smoking could have significant impact on an adolescent. Demonstrating that poisonous carbon monoxide builds up in smokers' bodies may also be effective. A personal look at a lung blackened from cigarette smoking likewise may increase the level of concern about what smoking does to normal body processes.

An institutional setting such as Job Corps offers an environment where enrollees have many potential role models. One or two staff members that a corpsmember can relate to, respect, and emulate can be very important to the corpsmember's success in Job Corps. A corpsmember is likely to accept and internalize many of the attitudes expressed by these staff members. Therefore, if many of the staff smoke there is reduced pressure or incentive for a corpsmember to remain a nonsmoker or to quit smoking. Unless the staff can become sufficiently convinced of the deleterious effects of smoking to curb their own tobacco abuse, they will be working at cross-purposes to any centerwide anti-smoking program and may themselves reduce or eliminate its chances for success.

REFERENCES

1. Health Consequences of Smoking: A Public Health Service Review. Publication no. 1696. Washington, D. C.: PHS, U.S. DHEW, 1967.

2. Health Consequences of Smoking: A Report to the Surgeon General. Publication no. 71-7513. Washington, D. C.: U.S. DHEW, 1971.

3. Rosenblatt, D., Bernard, R., and Allen, H. "Attitudes, Information, and Behavior of College Students Related to Smoking Cessations" in Studies and Issues in Smoking Behavior. Tucson: University of Arizona Press, 67-72, 1967.

4. Russell, C.S., Taylor, R., and Law, C.E. "Smoking in Pregnancy, Maternal Blood Pressure, Pregnancy Outcome, Baby Weight and Growth, and Other Related Factors: A Prospective Study." British Journal of Preventive and Social Medicine vol 22, no. 3: 119-126 (July) 1968.

5. Teenage Smoking: National Patterns of Cigarette Smoking, Ages 12 through 18, in 1968 and 1970. Publication no. 72-7508. Washington, D. C.: U.S. DHEW, 1971, and unpublished data from 1972 update.

DRUGS AND THE JOB CORPS

By

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Introduction

The subject of drugs and Job Corps will be discussed here within several frameworks: (1) the reasons that corpsmembers use drugs, the drugs being used at Job Corps centers, and the kinds of situations involving drugs that staff members consider to be problems, (2) current concepts concerning drugs and their effects, (3) possible methods of discussing drugs with people who are using them, and (4) some of the efforts made by the Job Corps Health Staff to deal with the problems presented by drug misuse.

It should come as no surprise to anyone that drugs today are an integral part of our society. They can be procured from both legal and illegal sources. Some of our biggest problems are with drugs which are obtained legally by prescription and over-the-counter purchase. Last year alone, there were 26 amphetamine tablets produced for every man, woman, and child in the United States. I think it is reasonable to speculate that a substantial proportion of these pills was diverted to illegal distribution and sale.

Misuse of nonprescription drugs is a characteristic of our culture. Advertisements in the mass media often encourage this. Television, particularly during prime time, bombards people with advertisements advocating the use of a pill for any kind of pain or problem they might have. The ads endlessly urge: if you can't go to sleep, take Nytol or Sominex; if you're hung over from not being able to sleep, take concentrated caffeine — Nodoz or Vivarin; if you have trouble with anxiety or tension, take Excedrin, Anacin, Compoz, or whatever. Numerous different kinds of drugs are pushed in this way by the mass media.

Some drugs, such as alcohol, are so commonly used that they can be considered as foods. Alcohol is like any other drug in that it can be used safely or it can be misused in a variety of ways. This also applies to another drug

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that some of us use to get started in the morning. That drug is the stimulant caffeine, found in coffee, tea, and Coca-Cola. Nicotine, found in cigarettes, is another widely used stimulant.

In spite of the common use of these drugs, it is not uncommon to hear someone say "I can't really understand this whole area of drugs because I really don't have any experience with drugs." Actually, many of the effects produced by some of the drugs used by virtually all groups of people — alcohol, caffeine, and nicotine — show great similarity to some of the relaxing effects of marijuana, to the intoxicating effects of the barbiturates, and to the stimulant effects of the amphetamines.

Drug Use in Job Corps

The Job Corps enrollment is comprised of young individuals who are at particularly high risk for drug use, persons who are curious and who have often felt both helpless and hopeless about their status and goals in life. Exposure to drugs and their ready availability in the inner city areas from which many Job Corpsmembers come also contribute to enrollees' recourse to these agents.

The need to discuss drug problems in the Job Corps is based on the simple fact that as physicians, mental health professionals, dentists, nurses, and other health professionals, we all are likely to be confronted with situations involving drug use. Although there is probably less drug use in the Job Corps than in most high schools, we have been confronted with a number of serious incidents involving drugs. We have seen corpsmembers die from overdoses. We had one situation in which several hundred corpsmembers at a center were simultaneously high on amphetamines which were supplied by a staff member. We have had situations in which methadone treatment programs were promised to future corpsmembers by unknowledgeable persons, and these corpsmembers arrived at centers in various stages of withdrawal — only to find no treatment available. The reality of drug use in today's society and the significant risk of Job Corpsmembers' resorting to drugs are two of the reasons that the Job Corps Task Force on Drugs and the Job Corps Health Staff felt this subject had to be discussed.

We discovered that there was a great deal of variability among Job Corps centers in the ways drug use situations were treated. Some centers were overly permissive about the use of drugs by corpsmembers, feeling that they could handle any type of situation that involved drug use, including heroin addiction. Other centers, by contrast, have been so strict about drug use that even first-time experimentation with an illegal drug has been cause for immediate termination from the program, in which case the corpsmember wound up back on the street. This variability underscored the need to develop policies and program activities which are consistent, practical, and realistic for the Job Corps.

Corpsmembers use drugs for a number of reasons. One is curiosity. Another is the fact that drugs really do make people feel good. Another is to erase pain. If a corpsmember is in a situation where he feels he's never going to go anywhere and his life has been little more than a succession of frustrations, failures, and rejections, it shouldn't be too surprising if he shows a tendency to block out the pain with a drug that makes him feel good. He might well find the instant "good feeling" that comes from drug use very attractive in that situation.

Another element in corpsmembers' drug usage is peer pressure, which means you're not really accepted unless you participate in the activities of the group. In some adolescent groups, one of these activities is drug use. Less common in corpsmembers is the possibility of using drugs as a form of rebellion against authority, whether the authority is in the form of police, family, or institutions.

One of the important problems associated with the multitude of drugs currently being used in society is that people frequently don't know precisely what they are taking. They may think they are taking a single drug, but actually be ingesting several. It is well known, for example, that there are several ways of lacing marijuana with various substances. In some party situations, young people toss a variety of pills into a bowl and everyone takes a handful. The polydrug culture is very much with us, and it frequently makes treatment a very difficult thing.

Another significant issue bearing upon the problem of drug use at centers is the question of when drug use becomes a problem. There are many

factors involved, including the kinds of drugs being used, frequency of use, attitudes of corpsmembers and center staff, availability of drugs in the community, community pressures, and specific laws in different localities. Who decides when drug use has become a problem? The center director? The health professionals? Other staff people? Corpsmembers themselves?

Definition of Terms

Necessary prerequisites to a discussion of drugs are definitions for commonly used terms. One word that seems to cause a lot of difficulty is NARCOTIC. This word may be used as a legal term to refer to the class of drugs covered under the Harrison Narcotic Act of 1914. (The Harrison Narcotic Act has recently been replaced by the Comprehensive Drug Act of 1970.) The word narcotic is also used specifically to describe a group of drugs called opiates: heroin, methadone, morphine, codeine, Demerol. Because the word narcotic is used in both of these ways, it can produce confusion in what we mean. Therefore, when we refer to opiates, we should use the precise term, OPIATES, or the specific substance name itself. What is important is that the term narcotic is not a medical classification; it is a legal one which is no longer useful.

ADDICTION is another problem word. It is characterized by three phenomena. One is a withdrawal syndrome — a reproducible set of symptoms which comes on when regular use of the drug is stopped. Addiction is also characterized by drug-seeking behavior. The user has to have the drug or he will go into withdrawal and become sick. The danger of death is substantial for withdrawal from alcohol and barbiturates, but not from heroin. Addiction is also characterized by tolerance.

TOLERANCE refers to the phenomenon in which an increased amount of a drug is needed to produce the same kind of effect with regular use. A number of drugs produce tolerance in addition to those which are addicting. The amphetamines are a good example. A person might start out on a very small amount of amphetamines and experience a sense of euphoria. As he progresses, the dose needed to reach that euphoria continues to increase.

The term POTENTIATION refers to the increased effects which are produced when certain drugs are taken together. For example, the combination of alcohol and barbiturates — both depressants — may produce a much

more toxic clinical picture including serious overdosage, than that resulting from the use of either of these drugs separately. The phenomenon of potentiation is very poorly understood on the street. Very few corpsmembers who attended the Job Corps Regional Drug Workshops were aware of the hazards of potentiation.

It is important also to be aware of drug slang, since users rarely call drugs by their scientific names. Instead, they are called smack, scag, grass, pot, mary jane, bennies, goof balls, yellows, reds, etc. Familiarity with these terms is useful in working with those who use drugs.

What Determines A Drug's Effects?

The effects of a drug are determined by a variety of factors, including the individual's mood and personality, the setting in which the drug is taken, the dose and frequency of use, the time of use, and the route of administration.

An example of the influence of mood on a drug's effects can be seen in the common experience of a depressed individual who takes a couple of shots of alcohol; the chances are good that he will become more depressed. On the other hand, if the same person is going to a party and feeling good in the first place, alcohol may have a very different kind of effect. It may have the effect of making him more relaxed, more talkative, and more uninhibited in a variety of ways. Many of us have had comparable experiences with alcohol when the drug increased and enhanced the kinds of feelings we already had.

Another significant factor in determining the effects of a drug is the setting in which the drug is taken. This varies from drug to drug. The classic situation is that of LSD. While a familiar setting with familiar people may be conducive to a good trip on LSD, unfamiliar surroundings, strangers, anxiety, and other conditions may produce a very different kind of reaction: paranoia and/or panic, or what is known as a "bummer."

The effects of a drug are also influenced by the amount ingested, i.e., both the dose and the frequency of use. The matter of dose requires little explanation; we are all familiar with the difference in effects between 2 shots of whiskey and a quart of it, and between 2 and 50 aspirin.

Frequency of drug use is also a familiar concept. It is useful to think of four patterns involving various dose-frequency combinations. These involve low and high doses, and intermittent and compulsive frequency of use.*

DOSE — FREQUENCY PATTERNS OF USE

Dose	Frequency: Intermittent	Frequency: Compulsive
Low	Low Dose, Intermittent Use	Low Dose, Compulsive Use
High	High Dose, Intermittent Use	High Dose, Compulsive Use

The most common pattern seen in the United States is that of low dose, intermittent use. Low dose, compulsive use patterns are seen where small amounts of a drug are used over a long period of time — for example, housewives who regularly use tranquilizers or amphetamines. Examples of high dose, compulsive use are found in cases of classical addiction. An example of still another combination is the spree drinker, the high dose, intermittent user. These various dose-frequency combinations should be kept in mind when attempting to assess an individual using drugs, because the patterns of use will determine how we may best be able to help.

Closely related to frequency of use is time of use. This factor can be especially important at Job Corps centers. For example, drugs may be used before a corpsmember begins to operate a bulldozer, electric saw, or some other kind of power equipment, or where altered behavior resulting from drug use causes a corpsmember to place himself in some other danger in his job training setting. The significance is considerably different when drug use occurs at social occasions, after classes, or on weekends.

In addition to dose, frequency, and time of use factors, drug effects are also determined by route of administration. There are a number of ways drugs may be taken. They may be taken by mouth (alcohol, caps, and tabs), snorted through the nostrils (cocaine and heroin), smoked (marijuana), or

* From Richard MacKenzie, M.D., personal communication.

injected intravenously (heroin and certain amphetamines). Drug effects are achieved most quickly by the intravenous route. This path is also the most dangerous, particularly when a person is unsure of the composition of the drug. Drug concentration may vary considerably. Heroin concentration, for example, may vary on the street from almost none to 15 or 20 percent. Concentration makes a great deal of difference if the drug is being injected and is being distributed throughout the body — putting stresses on many organs — in a matter of seconds. Another problem presented by the intravenous route is the introduction of various infections, particularly bacterial infections and hepatitis.

The Type of Drug

Another factor influencing the effect of a drug is the type of drug involved. The three principal addictive drugs used by Job Corpsmembers are alcohol, barbiturates, and opiates. Of these, the misuse of alcohol is the most common problem at Job Corps centers. Barbiturates include drugs such as Seconal (reds), Nembutal (yellows), and other short-acting compounds. The opiate group includes heroin, morphine, codeine, methadone, Demerol, and others.

Marijuana, a nonaddicting drug, is also commonly seen at centers. At the present time, there is no definitive documentation of medical consequences of its regular use other than those associated with smoking generally — bronchitis and other respiratory illnesses. Marijuana, in contrast to other drugs, has the property of negative tolerance. This means that instead of more of the drug being necessary to produce similar effects over time, less will apparently produce the same effect. Reasons for this phenomenon are not presently well understood. Marijuana has practically no overdose potential.

There are four other groups of drugs which deserve some mention. They are the inhalants, the hallucinogens, the stimulants, and the tranquilizers.

Inhalants, such as glue, paint, and hair spray are widely available at Job Corps centers. This ready availability, particularly in rural centers, seems to have a lot to do with their use. At these centers there are often no other drugs available. It is important to remember that the inhalants can be

very harmful to a variety of body organs, especially with heavy and/or prolonged use. The active "high-producing" ingredient in most inhalants is toluene, although some other substances are also involved, such as propylene glycol in hair sprays.

The hallucinogens probably are not widely used by Job Corpsmembers, or at least are less frequently reported. This group includes LSD, peyote, mescaline, psilocybin, DMT, STP, MDA, and a variety of others. It is not difficult to suggest reasons why depressants might be more popular with Job Corps drug users than the mind-expanding kinds of drugs. If we consider the difficult background of most corpsmembers, we can readily understand why they may not really be interested in expanding their awareness of the reality they have previously experienced.

Stimulants include caffeine, the amphetamines, and cocaine. Amphetamines were used in the recent past as appetite control agents and come in pill as well as injectable form. In many areas of the country the intravenous use of speed (methamphetamine) is associated with the use of heroin. Two factors are thought to be primarily responsible for this association. One is that once the "needle barrier" has been broken it is easier for someone who has been shooting speed to go on to something that also requires use of a needle, such as heroin. In addition, people who are chronic users of speed must constantly look for drugs that will bring them down in a pleasant way. Unfortunately, many individuals have found heroin to be such a drug, and many end up addicted to heroin.

Other commonly used drugs are the tranquilizers. This group of drugs is commonly misused by middle class housewives seeking relief from anxiety. Tolerance and physical dependence are associated with several of the minor tranquilizers, such as Librium and Valium. Potentiation between the minor tranquilizers and alcohol has also been observed. Although this potentiation is not as great as between alcohol and the barbiturates, there is some need for caution on the part of people using these drugs.

Tobacco is one substance infrequently mentioned in discussions of drug misuse. One of its active ingredients is the drug nicotine, which belongs to the stimulant group. Individuals may have withdrawal symptoms after

extended smoking; however, the withdrawal syndrome is not reproducible nor is it present in all individuals. Therefore, like the other stimulants, nicotine cannot be considered an addicting drug, even though one can become dependent physically on it.

Helping an Individual on Drugs

Learning drug facts is only a first step. Much more important is how we use our knowledge about drugs in dealing with the person in Job Corps. There are several areas where we can look to find clues in a drug user on how much we may be able to help the person who is misusing drugs.

For example, personal motivation is important both in becoming involved with drug use and in seeking help to break a drug habit. Why does a drug user want to get off drugs? How sincere is he? A person's willpower and personal strength have a lot to do with whether or not a successful intervention can be achieved. It is clear that some people have much more trouble with habitual patterns of behavior than others. They may not have the motivation, the consistency of behavior, or the personality traits that can make for a successful change in drug use behavior or other personal habits. One of the things, therefore, that has to be assessed is where an individual's areas of personal strength lie, in order to make best use of these in helping him to manage drug problems.

An individual's relationships with his peers have a lot to do with whether or not intervention can be successfully undertaken. If a person is deeply involved with peers who use drugs and continues to be involved with such groups, peer pressure is likely to be a potent obstacle to changes in the individual's patterns of drug use.

Beyond the influence of the peer group, we must look at the role of the individual's total socioeconomic and physical environment and attempt to understand how these have shaped his pattern of drug use. How readily available are drugs? How much do they cost? Our experience in Job Corps has shown that a change in environment — away from an atmosphere of drug availability and drug acceptance — can have a significant impact in helping a person reduce his drug use to a manageable level.

Another factor that merits consideration in deciding whether a successful intervention can be achieved is the matter of treatment resources. There are, to be sure, a variety of treatment methods and styles appropriate to different drug use patterns. For heroin, for example, these include methadone detoxification, methadone maintenance, therapeutic communities, self-help groups (e.g., Narcotics Anonymous), and pharmacological antagonists.

Perhaps one of the most important factors in treatment is whether or not we can help to provide meaningful alternatives to drug use. On a tough, pragmatic level, this is a difficult issue. When someone is taking a drug that is very pleasurable, when an instant good feeling is produced, even though it is transient, it is often difficult to find an acceptable substitute. Somehow, we must provide more meaningful, long-range alternatives, not on the basis of what we think is proper or fulfills our needs, but based on what the individual using drugs needs and wants.

Assessment of personal motivation, peer relationships, environmental effects, personal willpower, treatment resources, and availability of meaningful alternatives is important in determining our chances of helping a person who is having problems with drug use. Equally important is how we relate to this person as we are trying to assist.

How to Relate to a Person Who Is Using Drugs

The first principle is to remain calm. Although this is simple and self-evident, it is also frequently forgotten. Many of us, professionals and nonprofessionals alike, have anxieties about drugs and drug use. This is partly because some drugs are illegal, partly because we may not have had specific experience with a given drug, and partly because we don't feel we have as much information as people think we should have. However, despite these underlying concerns, it is important to remain calm and to develop a confidential and trusting relationship with the drug user. It should be obvious that if an individual thinks we are going to report him to law enforcement authorities, he is not likely to talk with us openly about drug use. Also important to establishing a good working relationship is the necessity for being honest about the extent of our drug knowledge. The fact is that people

who use drugs have some special knowledge, experience, and insights that many of us do not have. When we don't know we should feel free to admit it. This can then be made an important basis of honesty and openness which can lead to free discussion and exchange of information.

As health professionals, we need greater insights into our own reactions to drugs. We have to understand better the reasons for our reactions — whether they're due to the fact that a drug is illegal or because we haven't had experience with it or because we don't have adequate information about it. In trying to understand our reactions to drugs, we can begin by drawing upon our own experiences with drugs, remembering that alcohol, caffeine, and nicotine are all drugs and produce many symptoms that are similar to those of drugs used on the street.

It is clearly very important that we know enough about the laws relating to drug use. We need to know what laws exist in different communities, how they are enforced at Job Corps centers, and what reporting agreements have been made in advance at Job Corps centers. When drug-related situations arise, we will then be able to meet them effectively as health professionals, and provide advice and counsel to individuals who may not be aware of the laws in their particular communities.

In addition, it is important for us to understand what a drug is doing to and for a particular individual. What role is it playing in his life? Is a corpsman taking it because he's homesick? Because he's away from his girlfriend? Because he's hassled at the Job Corps center? Because he's curious? Because his friends won't accept him if he doesn't participate? When an individual has been helped by drugs through stressful situations in the past, new situations involving psychic stress will often cause him to revert to drug use in order to cope with them. One very powerful and useful way of understanding what a drug is doing for an individual is to try to put oneself in the drug user's shoes to understand how he feels.

In summary, then, to understand drug usage we must understand personal motivation, the effects of peer pressure, environment, current stresses, personal capabilities and will power, the resources available, and the alternatives that can be developed. With this background and when the

relationship between the health professional and the drug user is ready, alternatives to drug use can be discussed.

The Job Corps Drug Program

In July 1970, the Director of the Job Corps established a Drug Task Force to assist and advise the Health Staff in dealing with the problems of drug abuse.

The Task Force and the Health Staff believe that their activities in the drug field have to be relevant to what's going on at the regional office level, at the center level, at the screening level, and at the corpsmember level. To assure this relevance, a lot of reliance has been placed on input from people at these various levels in developing our projects and activities.

The second basic premise of the Job Corps drug program is that drug use is a reality in society today. As such, it must be viewed as a reality in the Job Corps. If drugs are likely to be around, we felt that our program activities should focus on prevention of drug problems, and on increasing the capacity for informed and rational decision-making about drug-related situations, not only in the health area, but in all areas of the Job Corps. This is another reason that we have tried to involve as wide a representation of Job Corps people as possible in policy setting and program planning.

The Task Force has been working in the following four specific areas: (1) the identification of drug use and misuse, primarily through a survey of drug knowledge, attitudes, and patterns of use, (2) educational efforts through regional drug workshops and development of culturally relevant media materials, (3) demonstration drug projects, and (4) development of a national policy on drugs and drug misuse in Job Corps.

In order to assess the dimensions of drug use and misuse by Jcb Corpsmembers, we distributed survey forms at last year's meeting of Job Corps center directors. The response rate on that survey was 100 percent. Nonetheless, there were clearly intrinsic limitations to that survey. Some centers may not have perceived drug use that was taking place. Some may have been unwilling to report drug use of which they were aware. In addition, center directors gave these surveys to different center staff members to fill out.

Notwithstanding these limitations, the results showed clearly that alcohol is perceived as the drug being used most at Job Corps centers. The estimate for Job Corpsmembers using alcohol averaged 30 percent, with a range of 1 to 80 percent estimated as regular users.

In light of the limitations mentioned above, the accuracy of these figures may be properly questioned. However, the evidence of drug use among significant numbers of Job Corpsmembers seems clear.

Another Health Staff activity involves a national drug survey.* Our population in the Job Corps had never before had the opportunity to discuss what they know about drugs, what their attitudes are toward drugs and drug use, and what drugs they have used. The survey addressed corpsmembers according to ethnic group, age, sex, and geographic region; staff were also interviewed. Information gained from the survey undertaken during the summer of 1972 will hopefully enable the Health Staff and the centers to plan and establish programs that are more relevant to the knowledge and needs of corpsmembers and center staffs.

In the area of education, one of our major activities has been the Job Corps Regional Drug Workshops. The last of that series of nine sessions took place in January 1972. Each of the 10 Job Corps regions, as well as the Job Corps National Office, was included in these intensive, live-in training sessions. Approximately 70 to 80 participants attended each workshop. They represented a wide variety of Job Corps people, including regional office personnel, screeners, placement personnel, center line staff, center administration, and many corpsmembers. Each workshop lasted 3 days, during which drugs were discussed in a wide variety of formats, ranging from the scientific and legal to problem-solving in drug situations and drug emergencies.**

In the educational area, we are also at work developing culturally relevant media and materials, including a drug film which will help Job Corps staff to relate better to young people using drugs. Many of the current materials available are distorted or inaccurate, and often are not relevant to the Job

* Completed in 1972.

** A monograph, "So You Want To Hold a Drug Workshop?" and a book, Youth, Poverty, and Drugs, concerning these workshops will be available in late 1973 through the Job Corps National Health Staff.

Corps' young and primarily minority group population. We have already reviewed a large number of training materials and will be continuing work at developing new ones.

The Health Staff has also sponsored three demonstration drug projects, one at the Washington, D. C. Residential Manpower Center, another at the Jersey City Job Corps Center for Women, and the third at the San Jose Residential Manpower Center. The purpose of these demonstration projects is to assess what kinds of situations can be dealt with in the context of a Job Corps center which is geared primarily toward manpower training, and which cannot.

Finally, we have been involved in the challenging area of drug policy development for the Job Corps. Before 1970, there was little in Job Corps documents relating to drugs. The language used in the Economic Opportunity Act and the Job Corps Admissions Manual was very nonspecific. The need for more definitive policy in a number of areas relating to drugs was clear. A good deal of time has been spent by the Health Staff and the Task Force in developing three different policy documents.

One of these policy documents is on urine testing for drugs. Some centers have substantial interest in beginning urinalysis programs as a way of identifying and assisting corpsmembers who have serious problems with drug use, particularly with certain specific drugs, such as the barbiturates, amphetamines, and opiates. This policy explains how to plan urine testing programs, how the programs may and may not be carried out, who will conduct the urine testing, and safeguards for confidentiality.

The second document we've been working on is a bulletin for screeners, to help increase their sophistication and clarify some of the Job Corps policy areas bearing upon drugs.

The third document is "The Misuse of Drugs," the new Technical Supplement (TS-N) to the Job Corps Health Program Manual. It includes definitions in lay terms and methods of identification of drug use. Of greatest interest to Job Corps staff have been those sections which discuss the classification of drug use and drug users, and how the situations and individuals thus classified would then be handled. Let me review these briefly.

Type III situations involve a drug supplying activity. Those corpsmembers who are found supplying drugs or otherwise encouraging other corpsmembers to use them may be given a medical or disciplinary discharge from the Job Corps, with a medical referral if the individual is also having difficulty with a drug habit. Type II situations involve corpsmembers who are addicted to drugs such as alcohol, barbiturates, or opiates, or whose drug use causes a substantial danger to themselves, other corpsmembers, or the center operation. Type II corpsmembers will receive a medical discharge with an appropriate referral to a helping agency.

Most difficult for us to clarify has been the Type I classification, which involves corpsmembers who are experimenting with or using drugs but are not addicted to them. There has been considerable discussion as to what ought to happen in such situations. What we've attempted to do is build in maximal flexibility for centers and center personnel — medical directors, health professionals, and center directors — in dealing with these types of situations. We recommend that some attempt be made to assist the corpsmember in reducing or terminating his drug use so he can remain and be trained in the Job Corps and become employable, instead of tossing him back on the street, where we know that treatment facilities and resources are quite limited.

Clearly, the problem situation involving drugs cannot be solved by any single policy or set of policies. Like all human problems, drug misuse can only be solved by people; people who care, people who will listen and try to understand. Hopefully, that's what the Job Corps is all about.

HELPING THE DRUG-ABUSING ENROLLEE IN JOB CORPS

By

Richard MacKenzie, M.D.*

The approach suggested in this paper has been developed through work with adolescents and young adults in a hospital-based adolescent medical clinic, in free clinics, and in a residential Job Corps setting. It addresses some of the more practical concepts of intervention with the corpsmember who has chosen drug use as an adaptive response to a "stress" situation. A corpsmember's decision to abuse chemical agents may have preceded his entry into the Job Corps or may have been made after entry. What is important to discover is what is happening and what we can do about it. Without going into a lengthy discussion of the adolescent process, I would like to suggest a few key concepts to which we can relate the individual corpsmember's behavior responses during the Job Corps experience.

Essential to the process of "growing up," or attaining adulthood, is the development of an identity or a feeling about oneself as a separate person. But what stimulates the need for change — the need to be a separate person? Basically, the stimulation comes from bodily changes that occur during puberty and permit independent existence and support. The individual can now fulfill some of the social expectations of adult functioning, but must, through experience, develop an ability to function in a responsible way. This means responsibility not only to others by not interfering with their rights, but also to himself, by continually developing healthy responses to the demands or stresses of living.

Stresses are continual, and the way a young person is able to respond depends on his life experience, on his previous successes and failures. If failure has been a characteristic of his past, he will develop coping responses.

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These responses enable the individual to live without the constant uncomfortable feelings of failure by helping him avoid some of the reality of his situation. Common coping responses include avoidance of confrontation, depression, and hostility. These stress responses may very well be accompanied by the use of substances that help the young person "feel good" — drugs such as alcohol, barbiturates, and marijuana. In Job Corps, the stresses are often those of separation, expectation, regimentation, and threat of failure.

Using this basic model of stresses and coping responses, let us examine some of the ways that an individual, such as a counselor or residential advisor who has the desire to help, can become part of the solution rather than contributing to the problem by emphasizing the stress. This does not necessitate any intimate knowledge of the so-called drug scene, but it does require a systematic approach to the problem. A systematic approach involves finding answers to questions that accurately define the problem, questions that help us get to the roots of the problem. For instance, to help a corpsmember who is using drugs, we need to know more about his previous adolescent experience. What have his past stress responses been? Has he developed coping responses to avoid the discomfort of his reality? What has the change in lifestyle caused by entry into Job Corps meant to him? How has he dealt with this stress? Is he using old coping responses or has he developed new ones? Under what circumstances was the decision to use drugs made? What alternatives were considered or available? What are the individual's strengths, his successes, and his self-esteem? Who is significant to this individual and why?

Answers to these kinds of questions help us understand the corpsmember as a separate person, and in so doing give us an idea of his identity. We begin to get a feel for what is needed and are able to match these needs with what can be provided in the Job Corps setting, both immediately and in the future. Support through directive counseling and frequent contact helps to maintain self-esteem through crisis periods.

But why do people of all ages take drugs? The ability to produce a feeling of well-being is common to all drugs of abuse. This feeling may be due to the direct effect of the chemical or to its indirect effect of blocking out

some of the unpleasantness of the real world, thus making the user a little more comfortable within himself. A false sense of bravado is also experienced with certain drugs, allowing the user to function in a manner that differs from his normal one. This is especially true with amphetamines, barbiturates, and alcohol. It is not uncommon, especially in residential or other institutional settings, for this bravado to be followed by a transference of responsibility for unacceptable behavior patterns to the drug, with an explanation such as "I didn't know what I was doing because I was loaded."

Through their mood-altering properties, drugs may be used as methods of coping with the discomfort of stress. Occasional or low dose - intermittent use may merely reflect a curiosity or desire for a specific mood experience. But in those individuals who go beyond the curiosity or tasting phase, we must look into the user's stress responses and the role that the drug is playing in dealing with these responses. Young people have a variety of responses to stress, many of them predictable. Thus, it is important to examine and understand some of the more common responses to stress and the dynamics of these. At the same time, it is useful to know how we ourselves use pleasure-producing substances. Through such self-knowledge, we often become better able to deal with those dependent upon our help.

When the stress of our expectations is too great for any corpsmember, we often see him respond in one of the following ways:

Aggression: This is a common response to authority. It is difficult to sit down and reason with an individual when aggression energy is high. Individuals who commonly respond with aggression are referred to by those around them as being completely unreasonable when "uptight." This reaction is a way of controlling a circumstance by physical dominance or by removing the stress object by force, thereby relieving the individual's internal anxiety about the problem. The use of drugs may help the individual control the physical expression of his hostility or may, on the other hand, promote its expression through violence.

Withdrawal: This is almost the complete opposite of aggression. The challenge of change, such as participation in a new educational training program, may result in psychological or actual physical withdrawal on the part of the corpsmember. He may have many excuses for why he should not go to class or take part. These may often be expressed as somatic complaints. These young people are conspicuous by their absence or noninvolvement and usually cause no trouble to the system. They may, however, get involved with drugs and usually will take their drugs while alone.

Despondency: This refers to a sadness rather than depression. Despondent people may smile while expressing strong feelings about just not being able to "make it." A despondent person's self-esteem is low. There has been little, if anything, in his past life experience upon which he can build a positive self-concept. Such an individual usually has experienced many "put-downs" by "significant others" in the past. Despondent people have a general feeling of worthlessness; energy is low and somatization great. Drugs are often used to give energy or, more commonly, just to make the person feel better.

Depression: This is a much more severe kind of response and fortunately is not too common in adolescents. Added to a general feeling of despondency is an element of self-neglect, and often emotional and physical self-destruction. There is little risk-taking in their interpersonal relationships, and little energy with which to reach out for help.

Acquiescence: This is a response in which the individual does little to come in conflict with the "system." He is often perceived as being the ideal corpsmember. When found to be using drugs regularly, the reasons behind his drug use are usually poorly understood. In most instances, the dynamics of this response to stress involve the feelings that the corpsmember has about himself for "bastardizing" himself to the "system." There is much unexpressed hostility and discomfort, and drugs allay these feelings.

Confrontation: This is a sophisticated response in the Job Corps setting. Given the challenge of change, the individual confronts the system

questioning the need for the change. He offers alternatives and often gets involved in bringing these about. He may use drugs occasionally, but only to maintain his peer credibility.

Utilizing these concepts, a knowledge of the corpsmember can be established, along with some ideas as to the reasons for his drug use. It is now important to further define the pattern of abuse, or the degree of commitment that this individual has made to drugs as a coping response. Unfortunately, strong commitments by corpsmembers to drugs often elicit weak commitments to effect change by those who are trying to help. This inverse relationship may be based on a person's fears, often unfounded, of failing to help the corpsmember. Fortunately, in the Job Corps, as in most adolescent populations, the patterns of commitment are often the less serious kind and, thus, are accessible to change.

Patterns of abuse are important to the overall assessment of the problem and to the establishment of management plans. The following patterns of abuse reflect personal commitment on the part of the user and are helpful in establishing intervention techniques:

Low dose - intermittent use: In this category, the abused substance is used in low doses, and the frequency of abuse is erratic, without definite time intervals between each occasion of abuse. An example of this pattern is the young person who occasionally "tokes" (smokes) marijuana at a party, not necessarily to get "stoned," but more in response to nonverbalized peer pressure. Using drugs in this manner may result from an individual's need to be accepted and, more importantly, not be rejected by his peer group.

High dose - intermittent use: This pattern, often associated with inexperience or ignorance, demonstrates a more daring or erratic kind of involvement and may prove to be threatening to the individual's survival. It may be associated with intense cyclical mood swings, with the drug being used by the corpsmember in an attempt to cope with the emotional pain he is experiencing.

Low dose - compulsive use: In this pattern of abuse, we find definite time intervals of drug use as well as drug-seeking behavior. Whether physically addicted or not, the corpsmember will actively seek out the drug. This drug-seeking behavior is often associated with an intense denial of the need to continue using the drug. In fact, the corpsmember may or may not be physically dependent on the drug.

High dose - compulsive use: In this pattern of abuse, definite time intervals are again present, and the degree of commitment to drugs is high, with the user often accepting his physical and psychological dependence. Drug-seeking behavior is overwhelming, and this markedly influences the young person's lifestyle — socially, emotionally, and economically.

These four patterns of drug usage are not mutually exclusive, and an individual often has a commitment to more than one pattern of abuse. Indeed, there is often a "helter-skelter" pattern of abuse, which is somewhat reflective of the individual's erratic attempts to cope with some self-identified stress. Thus, areas of intervention can be defined by identifying a corpsmember's drug abuse pattern, eliciting his history of drug involvement, and assessing his past nonchemical coping mechanisms.

It is important to realize, though, that the commitment to drug use need not necessarily involve only one drug, but may also include many different kinds of drugs, based on personal choice, street availability, purity of the chemical, or even honesty of the pusher. This "street polypharmacy" is fraught with danger, as an individual is not always sure of what he is buying. For example, what is sold as "chemical acid" (a street term for illicitly manufactured LSD) may, on analysis, prove to be poor quality LSD, still containing a large amount of nonconverted ergot alkaloids, along with one of the amphetamines or even strychnine.

Overdose, extreme intoxication or uncontrollable behavior, unpleasant sensations, confusion, or disorientation may be manifestations of drug crises. In these situations, it is important not to waste time in attempting to define

exactly such things as drug and dosage taken. Drug emergencies call for decisive action, recruitment of help, and a minimum of surrounding stimulation. Seek help from those who may be knowledgeable about drug reactions, or about this particular corpsmember's situation. Once the crisis resolves, there is time to find the particular drugs involved, circumstances of use, previous use, etc., and then to alter therapy accordingly.

In summary, a systematic approach to the problem of drug abuse is most important in defining ways to be of help. Knowledge must be gained about the individual and his behavioral response to stress or the challenge of expectation. His degree of commitment to drugs must be explored and documented. Intervention must provide alternate, acceptable coping responses through a continuing, caring relationship.

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MURRAY, Robert F., Jr., M.D., M.S., Associate Professor, Pediatrics and Medicine; Chief, Medical Genetics Unit; and Director, Genetic Counseling Section, Center for Sickle Cell Anemia, Howard University, page 49.

NELSON, Scott H., M.D., M.P.H., Formerly Principal Medical Officer, Job Corps, DOL. Special Assistant to the Director, Bureau of Community Health Services, Health Services Administration, DHEW, pages 13, 33, and 207.

OLSEN, Tina, Program Evaluator, Child Development Center, Atlanta Residential Manpower Center, page 25.

SCHONBERG, S. Kenneth, M.D., Staff Physician, Division of Adolescent Medicine, Montefiore Hospital, New York, and Assistant Professor of Pediatrics, Albert Einstein College of Medicine, page 87.

SHAPIRO, Stewart, D.M.D., M.S.C.H., Formerly Assistant Professor, Department of Community Dentistry, University of Maryland School of Dentistry, Baltimore, and Associate, Department of Epidemiology, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore. Chairman and Associate Professor, Division of Community Dentistry, College of Dentistry, University of Oklahoma Health Sciences Center, Oklahoma City, page 61.

STODDARD, Frederick, M.D., Formerly Deputy Mental Health Officer, Job Corps, DOL. Clinical Associate, Adult Psychiatry Branch, National Institutes of Mental Health, DHEW, page 133.

TAPPAN, Major W., D.D.S., M.P.H., Regional Dental Consultant, Job Corps, and Director of Public Health Dental Services, Denver Department of Health and Hospitals, page 79.

THOMPSON, Conyers, M.D., Formerly Regional Mental Health Consultant, Job Corps. Assistant Professor of Psychiatry, Emory University School of Medicine, page 187.

TIMMONS, Hal, M.S.W., Principal Social Worker, Job Corps, DOL, page 13.

TOLBERT, George, M.D., Acting Director, Office of Health Services Financing, Bureau of Community Health Services, and Special Assistant to the Director, Bureau of Community Health Services, Health Services Administration, DHEW, page 33.

WHITTEN, Charles, M.D., Professor of Pediatrics, Wayne State University School of Medicine, Detroit; Program Director, Comprehensive Sickle Cell Center, Wayne State University, Detroit; and President, National Association for Sickle Cell Disease, page 121.

CURRENTLY AVAILABLE JOB CORPS HEALTH MATERIALS

MONOGRAPHS

"Comprehensive Ambulatory Health Care for High-Risk Adolescents: Abstracts of Presentations from Colloquia for Job Corps Health Care Providers."

Summaries of oral remarks of speakers at two colloquia held in February 1972 for Job Corps health care providers. Includes abstracts on special Job Corps health programs and projects, common medical problems, sexuality, venereal disease, family planning, mental health, and drugs.

"So You Want to Hold a Drug Workshop?" by Scott H. Nelson, M.D., M.P.H., Morton Shaevitz, Ph.D., and Richard G. MacKenzie, M.D.

Monograph on planning and conducting drug workshops based on the authors' experiences with more than 20 drug workshops for Job Corps and other Department of Labor manpower programs. Discusses such matters as setting workshop objectives, selecting participants, selecting and using resources and materials, logistics, planning activities, and designing evaluation mechanisms. Useful for planning workshops on subjects other than drugs.

Youth, Poverty, and Drugs. Edited by Scott H. Nelson, M.D., M.P.H.

Collection of discussions from the Job Corps regional drug workshops. The book is concerned in general with poor young people and drugs. Articles include discussions of pharmacology, sociocultural aspects of drug use, and practical approaches to drug users.

REPORTS

"An Evaluation of the 'Solo Parent' Program at the Atlanta Residential Manpower Center."

Evaluation of the first 12 months of operation of a demonstration program which provided high quality child care services and parent skills training to participating mothers enrolled at the Atlanta Job Corps center. Includes statistical analysis of the impact of the program on the performance of participating "solo" mothers in Job Corps.

"Pregnancy Research Project."

Report on a project that tested the feasibility of allowing corpswomen who become pregnant in Job Corps to remain

in training through their seventh month of pregnancy. Includes statistical evaluations, cost breakdowns, and evaluation of the project's impact.

JOB CORPS HEALTH PROGRAM POLICY MANUALS

Technical Supplement H to the Job Corps Health Program Manual: "Medical Termination for Pregnancy" (TS-H).

Manual containing revised Job Corps pregnancy policy which allows corpswomen who become pregnant while in Job Corps to remain in the program through their seventh gestational month. Provides guidelines for implementation of this policy.

Appendix to TS-H: "Medical Care of the Pregnant Corpswoman."

Manual outlining minimal criteria for the medical care of all pregnant Job Corps enrollees, including frequency of prenatal examinations, laboratory tests to be performed, appropriate diet, and conditions that warrant special attention and follow-up. Points out special problems associated with pregnancy in adolescents.

Technical Supplement N to the Job Corps Health Program Manual: "The Misuse of Drugs" (TS-N).

Manual outlining policy concerning drug use by Job Corps enrollees. Contains definitions of drugs, stresses the importance of drug education as one means of preventing drug misuse, outlines signs and symptoms of drug use, and provides guidelines for evaluation and management of enrollees who misuse drugs.

"Dental Priorities." Job Corps Bulletin No. 73-8.

Bulletin describing classification system used on Job Corps centers to identify enrollees with the most urgent dental needs. Sets up four categories of dental need and establishes order for providing dental care to individuals by category.

"Job Corps Health Management Information System: Implementation Manual."

Manual outlining objectives, capabilities, and significance of Job Corps Health Management Information System input component. Includes sample reporting forms and instructions for their use.

INSTRUCTORS' MANUALS

"Job Corps Health Education Program (HEP) Instructors' Manual."

Manual for instructors in Job Corps' culturally targeted health education program. Designed for use with youths from poverty backgrounds. Provides background information and approaches to class discussions of the concept of high health risk, where to obtain quality health care, cultural variations in health practices, sexuality (including contraception and venereal disease), first aid, emotional first aid, preventive dentistry, nutrition, drug abuse, and genetic conditions.

"Health Occupations Training in Job Corps: Instructors' Manual."

Manual outlining conceptual framework for the development of meaningful training programs for entry level health workers. Contains a model core curriculum, descriptions of health occupations and career ladders, and a reference list of relevant pamphlets, publications, and materials.

BROCHURES AND PAMPHLETS

"Sickle Cell Anemia and Sickle Cell Trait."

Brochure describing Job Corps film of same name. Lists topics covered in the film, provides suggestions on use of the film, and gives information on ordering.

"Working Out."

Brochure describing Job Corps "trigger" film on attitudes of poverty youths toward drugs. Outlines the purposes of the film and how it can be used most effectively. Supplies definitions of drug slang used in the film.

"Sickle Cell Anemia and Sickle Cell Trait."

Attractive brochure presenting accurate basic information on sickle cell anemia, sickle cell trait, hemoglobin C trait, and mechanism of genetic transmission in easily understandable language.

"Siclemia Y Factor Recesivo S"

Spanish version of "Sickle Cell Anemia and Sickle Cell Trait" general information brochure.

"Job Corps Health Programs, 1973-1974."

Pamphlet describing Job Corps comprehensive health program and special health-related projects.

"Job Corps Health Management Information System."

Brochure outlining goals, functions, components, and outputs of a new management-oriented health information system that provides utilization and related cost information on Job Corps center health programs to health care providers and managers throughout Job Corps.

HANDBOOKS

"Guidelines for Counseling Job Corpsmembers with Sickle Cell Trait."

Handbook describing a sensitive and nondirective approach to counseling youths with sickle cell trait or hemoglobin C trait. Contains basic information on how to conduct counseling sessions with young adults who have sickle cell (and hemoglobin C) trait. Includes discussion of Mendelian genetics, psychosocial problems, and common misconceptions.

"Sickle Cell Handbook for Health Professionals in Job Corps."

Handbook providing up-to-date factual information about the most common hemoglobinopathies and principles of treatment for patients with sickle cell anemia and its variants.

FILMS

"Sickle Cell Anemia and Sickle Cell Trait."

33-minute 16mm. color film which provides introduction to sickle cell anemia and sickle cell trait and explains the differences between the two. Includes discussions by experts in the field, on-the-street interviews, and animation depicting transmission of genes from parents to child. Developed primarily for young adults, including those with limited reading ability. Appropriate for junior and senior high school students and general adult audiences.

"Working Out"

27-minute 16mm. color film useful in staff drug education and training programs. Presents an honest picture of how many young people from poverty backgrounds think and feel about the drug scene. Shows how concerned adults and youths can work together on problems relating to drug use. Designed to raise issues to trigger group discussions.

OTHER MATERIALS

"Health Care for the Economically Disadvantaged Adolescent." by Jon E. Fielding, M.D., M.P.H. and Scott H. Nelson, M.D., M.P.H.

Article describing health problems of economically disadvantaged adolescents and reasons why they are at higher than average risk for these problems. Suggests how health professionals can help young adults to reduce the incidence of many health conditions.

Drug Identification Guide

Colorful 4 1/2-inch wheel showing signs and symptoms, dangers, and graphic illustrations of seven types of drugs: marijuana, alcohol, opiates, sedatives, stimulants, inhalants, and psychedelics. Also lists complications arising from different ways drugs are taken.

For information on how to obtain any of these materials, write to the Chief, National Health Staff, Job Corps, Manpower Administration, Department of Labor, Washington, D. C. 20210.